

Dell Pro 14 Premium

PA14250

Owner's Manual

Anmärkningar, försiktighetsbeaktanden och varningar

 **OBS:** OBS innehåller viktig information som hjälper dig att få ut det mesta av produkten.

 **CAUTION: VIKTIGT anger antingen risk för skada på maskinvara eller förlust av data och förklarar hur du kan undvika problemet.**

 **WARNING: En WARNING visar på en potentiell risk för egendoms-, personskador eller dödsfall.**

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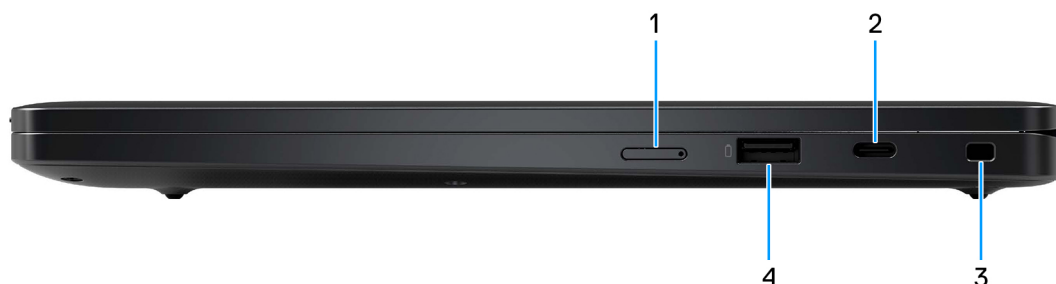
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Vyer av Dell Pro 14 Premium PA14250

Right



Figur 1. Right view

1. nano-SIM card slot

Insert a nano-SIM card to connect to a mobile broadband network.

2. Thunderbolt 4 port with DisplayPort Alt Mode/USB4/Power Delivery

Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Supports data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

i OBS: You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [Dell Support Site](#).

i OBS: A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

i OBS: USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

i OBS: Thunderbolt 4 supports two 4K displays or one 8K display.

3. Wedge-shaped lock slot

Connect a security cable to prevent unauthorized movement of your computer.

4. USB 3.2 Gen 1 port with PowerShare

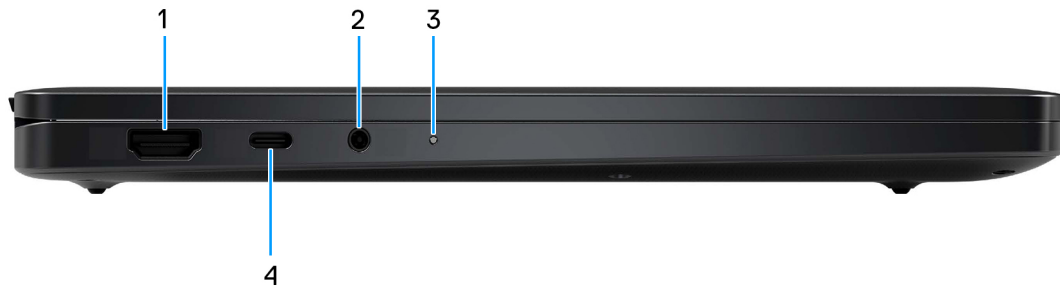
Connect devices such as external storage devices and printers.

Supports data transfer speeds up to 5 Gbps. PowerShare enables you to charge your USB devices even when your computer is turned off.

i OBS: If your computer is turned off or in a hibernating state, you must connect the power adapter to charge your devices using the PowerShare port. You must enable this feature in the BIOS setup program.

i OBS: Certain USB devices may not charge when the computer is turned off or in a sleep state. In such cases, turn on the computer to charge the device.

Left



Figur 2. Left view

1. HDMI 2.1 port

Connect to a TV, external display, or another HDMI-in enabled device. Provides video and audio output.

2. Universal audio port

Connect headphones or a headset (headphone and microphone combo).

3. Battery indicator LED

Indicates the battery-charge status.

- Solid amber-Battery charge is low.
- Off-Battery is fully charged.

4. Thunderbolt 4 port with DisplayPort Alt Mode/USB4/Power Delivery

Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Supports data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

i OBS: You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [Dell Support Site](#).

i OBS: A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

i OBS: USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

i OBS: Thunderbolt 4 supports two 4K displays or one 8K display.

Top



Figur 3. Top view

1. Camera shutter

Slide the privacy shutter to the left to access the camera lens.

2. Power button with optional fingerprint reader

Press to turn on the computer if it is turned off, in sleep state, or in hibernating state.

When the computer is turned on, press the power button to put the computer into a sleep state; press and hold the power button for 10 s to force shut-down the computer.

If the power button has a fingerprint reader, place your finger on the power button steadily to log in.

 **OBS:** You can customize the power-button behavior in Windows.

3. Speakers

Provides audio output.

4. Zero-Lattice Keyboard with battery-saving backlight

Compact keyboard with larger keycaps and power-saving mini-LED backlight. Use the keyboard to input characters and perform functions.

5. Touchpad

Move your finger on the touchpad to move the mouse pointer.

Top (for computers shipped with Collaboration Touchpad)



Figur 4. Top view

1. Camera shutter

Slide the privacy shutter to the left to access the camera lens.

2. Power button with optional fingerprint reader

Press to turn on the computer if it is turned off, in sleep state, or in hibernating state.

When the computer is turned on, press the power button to put the computer into a sleep state; press and hold the power button for 10 s to force shut-down the computer.

If the power button has a fingerprint reader, place your finger on the power button steadily to log in.

 **OBS:** You can customize the power-button behavior in Windows.

3. Speakers

Provides audio output.

4. Zero-Lattice Keyboard with battery-saving backlight

Compact keyboard with larger keycaps and power-saving mini-LED backlight. Use the keyboard to input characters and perform functions.

5. Microphone control (Zoom app and Teams for work or school (Windows desktop) app support only)

Tap to mute or unmute the microphone. The microphone control indicates the status of the microphone as follows:

- Red – The microphone is muted.
- White – The microphone is unmuted.

6. Chat box control (Zoom app and Teams for work or school (Windows desktop) app support only)

Tap to show or hide the chat window. The control blinks when you receive a new chat message.

7. **Screen share control (Zoom app and Teams for work or school (Windows desktop) app support only)**

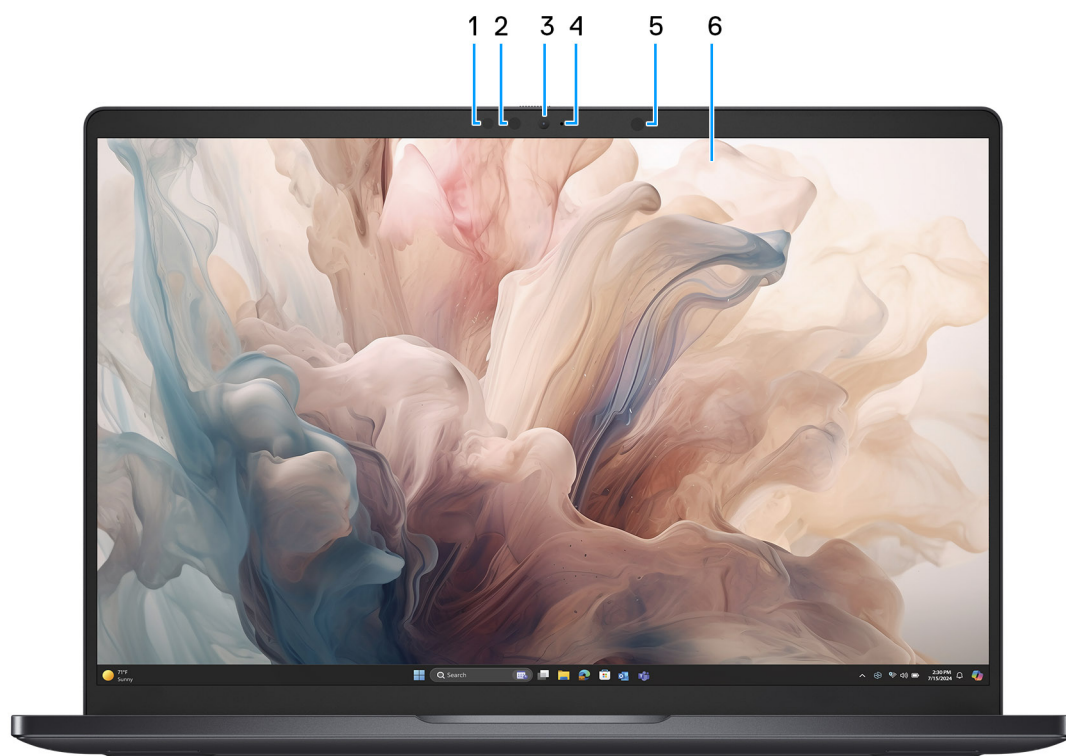
Tap to start or stop sharing your screen.

8. **Webcam control (Zoom app and Teams for work or school (Windows desktop) app support only)**

Tap to turn on or turn off the camera. The webcam control indicates the status of the camera as follows:

- Red – The camera is turned off.
- White – The camera is turned on.

Front



Figur 5. Front view

1. **IR camera**

Enhances security when paired with Windows Hello face authentication.

2. **IR emitter**

Emits infrared light, which enables the infrared camera to sense and track motion.

3. **RGB camera**

Enables you to video chat, capture photos, and record videos.

4. **Camera indicator LED**

Turns on when the camera is in use.

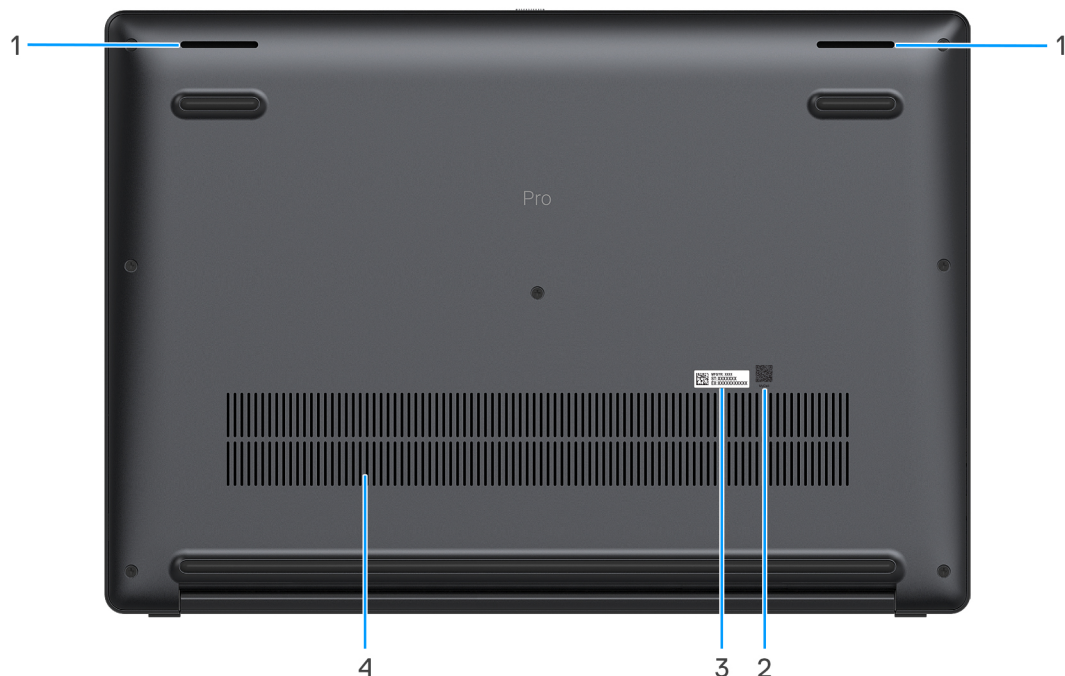
5. **Ambient Light Sensor**

Detects the ambient light and automatically adjusts the display brightness.

6. **Display panel**

Provides visual output to the user.

Bottom



Figur 6. Bottom view

1. Speakers

Provide audio output.

2. MyDell QR code

MyDell is your hub for content personalized to your Dell Pro 14 Premium PA14250, including videos, articles, manuals, and access to support.

3. Service Tag label

The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information. The Express Service Code is a numeric version of the Service Tag.

4. Air vents

Air vents provide ventilation for your computer. Clogged air vents can cause overheating and can affect your computer's performance and potentially cause hardware issues. Keep the air vents clear of obstructions and clean them regularly to prevent the build-up of dust and dirt. For more information about cleaning air vents, search for articles in the Knowledge Base Resource at the [Dell Support site](#).

Locate the Service Tag or Express Service Code label of your computer

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information. The Express Service Code is a numeric version of the Service Tag.

For more information about how to find the Service Tag of your computer, search in the Knowledge Base Resource at the [Dell Support Site](#).



Figur 7. Service Tag/Express Service Code location

Batteriladdningsstatuslampa

Följande tabell visar batteriladdningsstatuslampan för din Dell Pro 14 Premium PA14250.

Tabell 1. Batteriladdnings- och statuslampans beteende

Strömkälla	Lampans beteende	Systemets strömtillstånd	Batteriladdningsnivå
Nätadapter	Off (av)	S0 eller S5	Fulladdat
Nätadapter	Fast vitt sken	S0 eller S5	< Fulladdat
Batteri	Off (av)	S0 eller S5	11–100 %
Batteri	Fast orange sken (590 +/- 3 nm)	S0 eller S5	< 10 %

- S0 (PÅ): Datoren är påslagen.
- S4 (Viloläge): Datoren förbrukar minst ström i viloläge jämfört med i påslaget eller avstängt läge. Datoren är nästan i avstängt läge. Kontextdata skrivs till en lagringsenhet så att du kan återuppta där du lämnade när datoren slås på.
- S5 (AV): Datoren är i avstängt läge.

Set up your Dell Pro 14 Premium PA14250

Om denna uppgift

i **OBS:** The images in this document may differ from your computer depending on the configuration you ordered.

Steg

1. Connect the power adapter and press the power button.



Figur 8. Connect the power adapter and press the power button.

i **OBS:** The battery may go into power-saving mode during shipment to conserve charge on the battery. Ensure that the power adapter is connected to your computer when it is turned on for the first time.

2. Finish the operating system setup.

For Ubuntu:

Follow the on-screen instructions to complete the setup. For more information about installing and configuring Ubuntu, search in the Knowledge Base Resource at [Dell Support Site](#).

For Windows:

Follow the on-screen instructions to complete the setup. When setting up, it is recommended that you:

- Connect to a network for Windows updates.

i **OBS:** If connecting to a secured wireless network, enter the password for the wireless network access when prompted.

- If connected to the Internet, sign-in with an existing Microsoft account or create a new account.

3. Locate and use Dell apps from the Windows Start menu—Recommended.

Tabell 2. Locate Dell apps

Resources	Description
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.
	SupportAssist SupportAssist keeps your computer running at its best by optimizing settings, detecting issue, and removing viruses. It also notifies when updates are available for your computer. SupportAssist proactively checks the health of your computer hardware and software. When an issue is detected, the necessary system state information is sent to Dell to begin troubleshooting. SupportAssist is preinstalled on most of the Dell devices running the Windows operating system. For more information, see Support Assist documentation at Dell Support Site . <i>ⓘ</i> OBS: In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.
	Dell Command Update Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell Command Update, see the product guides and third-party license documents at Dell Support Site .
	Dell Digital Delivery Download software applications, which are purchased but not preinstalled on your computer. For more information about using Dell Digital Delivery, search in the Knowledge Base Resource at Dell Support Site .

Specifikationer för Dell Pro 14 Premium PA14250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Pro 14 Premium PA14250.

Tabell 3. Dimensions and weight

Description	Values
Height:	
Front height	16.38 mm (0.64 in.)
Rear height	16.99 mm (0.67 in.)
Width	311.20 mm (12.25 in.)
Depth	216.70 mm (8.53 in.)
Weight (Minimum)  OBS: The weight of your computer depends on the configuration that is offered.	1.14 kg (2.52 lb)

Processor

I nedanstående tabell finns information om de processorer som stöds av din Dell Pro 14 Premium PA14250.

Tabell 4. Processor

Beskrivning	Alternativ ett	Alternativ två	Alternativ tre	Alternativ fyra
Processortyp	Intel Core Ultra 5 236V vPro Enterprise	Intel Core Ultra 5 238V vPro Enterprise	Intel Core Ultra 7 266V vPro Enterprise	Intel Core Ultra 7 268V vPro Enterprise
Processorns wattal	17.50 W	17.50 W	17.50 W	17.50 W
Antal processorkärnor	8	8	8	8
Antal processortrådar	8	8	8	8
Processorhastighet	up to 4.70 GHz	up to 4.70 GHz	up to 5 GHz	up to 5 GHz
Processorcacheminne	8 MB	8 MB	12 MB	12 MB
Integrerad grafik	Intel Arc Graphics 130 V	Intel Arc Graphics 130V	Intel Arc Graphics 140V	Intel Arc Graphics 140V

Kretsupsättning

I nedanstående tabell finns information om den kretsupsättning som stöds av din Dell Pro 14 Premium PA14250.

Tabell 5. Kretsupsättning

Beskrivning	Värden
Kretsupsättning	Integrated in the processor
Processor	Intel Core Ultra 5/7
DRAM-bussbredd	64-bit
Flash EPROM	64 MB
PCIe-buss	up to Gen4

Operativsystem

Din Dell Pro 14 Premium PA14250 stöder följande operativsystem:

- Windows 11 24H2
- Windows 11 23H2
- Windows 10 22H2
- Ubuntu Linux 24.04

i **OBS:** Windows 10 22H2 is only for custom configured computers downgraded by end users from Windows 11. Windows 10 22H2 downgraded installations are supported by customer internal IT and is subjected to the Microsoft Windows 10 End of Support plan.

Minne

I följande tabell visas minnesspecifikationerna för din Dell Pro 14 Premium PA14250.

Tabell 6. Minnesspecifikationer

Beskrivning	Värden
Minnesplatser	Onboard memory
Minnestyp	LPDDR5x
Minneshastighet	8533 MT/s
Maximum minneskonfiguration	32 GB
Minimum minneskonfiguration	16 GB
Minneskonfigurationer som stöds	• 16 GB, 1 x 16 GB, LPDDR5x, 8533 MT/s • 32 GB, 1 x 32 GB, LPDDR5x, 8533 MT/s

External ports and slots

The following table lists the external ports and slots of your Dell Pro 14 Premium PA14250.

Tabell 7. External ports and slots

Description	Values
USB ports	• One USB 3.2 Gen 1 (5 Gbps) with PowerShare port
Audio port	One universal audio port

Tabell 7. External ports and slots (fortsättning)

Description	Values
Video port(s)	- Two Thunderbolt 4 (40 Gbps) with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery ports - One HDMI 2.1 port
Media-card reader	Not supported
Power-adaptor port	Supported through the Thunderbolt 4 ports available on the computer
Security-cable slot	One wedge-shaped security slot
SIM-card slot	One nano-SIM card slot (optional)

Interna kortplatser

I följande tabell visas de interna kortplatserna på din Dell Pro 14 Premium PA14250.

Tabell 8. Interna kortplatser

Beskrivning	Värden
M.2	- One M.2 2230 slot for solid-state drive - One M.2 3052 slot for 5G WWAN card i OBS: Om du vill lära dig mer om funktionerna för olika typer av M.2-kort kan du läsa kunskapsdatabasartikeln på Dells supportwebbplats.

Trådlös modul

I den följande tabellen visas modulen för trådlöst lokalt nätverk (WLAN) som stöds på Dell Pro 14 Premium PA14250.

Tabell 9. Specifikationer för den trådlösa modulen

Beskrivning	Värden
Modellnummer	Intel WiFi 7 BE201
Överföringshastighet	5670 Mbps
Frekvensband som stöds	2.40 GHz/5 GHz/6 GHz
Trådlösa standarder	- WiFi 802.11a/b/g - Wi-Fi 4 (WiFi 802.11n) - Wi-Fi 5 (WiFi 802.11ac) - Wi-Fi 6E (WiFi 802.11ax) - Wi-Fi 7 (WiFi 802.11be)
Kryptering	64-bit/128-bit WEP - AES-CCMP - TKIP
Trådlöst Bluetooth-kort	Bluetooth 5.4

WWAN-modul

I nedanstående tabell visas modulen för WWAN (Wireless Wide Area Network) som stöds av din Dell Pro 14 Premium PA14250.

i **OBS:** WWAN-modulen är endast tillgänglig på vissa konfigurationer och i vissa regioner.

i **OBS:** Tillgängligheten för eSIM-funktionen på den här modulen beror på din region.

i **OBS:** Instruktioner om hur du konfigurerar SIM- eller eSIM-anslutningar på datorn finns i *konfigurationsguiden för SIM/eSIM för Windows* som finns i produktdokumentationen på [Dells supportwebbplats](#).

Tabell 10. WWAN-modul specifikationer

Beskrivning	Värden
Modellnummer	Qualcomm Snapdragon X72 Global 5G Modem (DW5934e)
Formfaktor	M.2 3052 Key-B
Värdgränssnitt	PCIe Gen3
Nätverksstandard	NR FR1(Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/Beidou
Överföring av datahastighet	5G NR: DL 4.14Gbps/UL 900Mbps - LTE: DL 2.0Gbps (CAT20)/UL 211Mbps (CAT18) - UMTS: DL DC-HSPA+ Rel8:42 Mbps/UL 5.76 Mbps
Frekvensband för drift	- NR(n1, n2, n3, n5, n7, n8, n12, n13, n14, 18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n67, n70, n71, n75, n76, n77, n78, n79, n91, n92, n93, n94) - LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B67, B68, B70, B71) - WCDMA/HSPA+ (1, 2, 4, 5, 8)
Strömförsörjning	DC 3.135 V to 3.63 V, typical 3.3 V
SIM-kort	Supported through external SIM slot
eSIM med dubbel SIM (DSSA)	Supported
Antennvariation	Supported
Radio på/av	Supported
Aktivera vid trådlöst	Supported in Morden Standby mode
Temperatur	- Normal operating temperature: –30°C to +70°C - Extended operating temperature: –40°C to +85°C - Storage temperature: –40°C to +85°C
Antennkontakt	- WWAN Main Antenna x 1 - WWAN Diversity Antenna x 1 4x4 MIMO Antenna x 2
i OBS: Instruktioner om hur du hittar datorns IMEI-nummer (International Mobile Equipment Identity) hittar du genom att söka i kunskapsdatabasresursen på Dells supportwebbplats .	

Ljud

I följande tabell visas ljudspecifikationerna för din Dell Pro 14 Premium PA14250.

Tabell 11. Ljudspecifikationer

Beskrivning		Värden
Ljudstyrenhet		Cirrus CS42L43 and Cirrus CS35L56
Stereokonvertering		Supported
Internt ljudgränssnitt		High-definition audio
Externt ljudgränssnitt		Universal audio port
Antal högtalare		Four
Intern högtalarförstärkare		Supported (audio codec integrated)
Externa volymkontroller		Keyboard shortcut controls
Högtalaruteffekt:		
	Genomsnitt	2 W
	Topp	2.5 W
Mikrofon		Digital-array microphones in camera assembly

Lagring

I det här avsnittet visas lagringsalternativen på din Dell Pro 14 Premium PA14250.

Your computer supports the following storage configuration:

- One M.2 2230 solid-state drive

The M.2 2230 solid-state drive is the primary drive of your computer.

Tabell 12. Lagringsspecifikationer

Lagringstyp	Gränssnittstyp	Kapacitet
M.2 2230 solid state drive, Class 35	TLC PCIe Gen4 NVMe	256 GB/512 GB/1 TB
M.2 2230 solid-state drive, Self-encrypting drive, Opal 2.0, Class 35	TLC PCIe Gen4 NVMe	512 GB
M.2 2230 solid state drive, Class 25	QLC PCIe Gen4 NVMe	2 TB

Tangentbord

I följande tabell visas specifikationerna för ditt tangentbord Dell Pro 14 Premium PA14250.

Tabell 13. Specifikationer för tangentbordet

Beskrivning	Värden
Tangentbordstyp	Battery-saving mini LED backlit zero-lattice keyboard

Tabell 13. Specifikationer för tangentbordet (fortsättning)

Beskrivning	Värden
Tangentbordslayout	QWERTY
Antal tangenter	- English US, English International, Arabic, Canada bilingual (MUI), Chinese traditional, French-Canadian, Greek, Hebrew, Korean, Russian, Thai, Ukrainian: 79 keys - French-Canadian Quebec, Belgian, Bulgarian, Czech & Slovakian (MUI), Danish, English UK, Estonian, French European, German, Hungarian, Icelandic, Italian, Nordic (MUI), Norwegian, Portugese Iberian, Slovenian, Spanish (Castillian), Spanish (Latin America), Swedish/Finnish, Swiss European (MUI), Turkish, Turkish (F): 80 keys - Japanese: 83 keys - Portuguese Brazilian: 81 keys
Tangentbordsstorlek	X=18.05 mm key pitch Y=18.05 mm key pitch
Kortkommandon	Vissa tangenter på tangentbordet har två symboler. Dessa tangenter kan användas för att ange alternativa tecken eller för att utföra sekundära funktionerna. För att skriva in det alternativa tecknet trycker du på Skift och önskad tangent. För att utföra sekundära funktioner trycker du på Fn och den önskade tangenten.  OBS: Du kan definiera det primära beteendet hos funktionstangenterna (F1–F12) genom att ändra funktionstangenter beteende i BIOS-inställningsprogrammet.  OBS: Om Copilot i Windows inte är tillgängligt på datorn startas Windows-sökning med Copilot-tangenten. Om du vill ha mer information om Copilot i Windows kan du söka i kunskapsdatabasresursen på Dells supportwebbplats.

Keyboard shortcuts of Dell Pro 14 Premium PA14250

 **OBS:** Keyboard characters may differ depending on the keyboard language configuration. Keys that are used for shortcuts remain the same across all language configurations.

Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. The symbol that is shown on the lower part of the key refers to the character that is typed out when the key is pressed. If you press shift and the key, the symbol that is shown on the upper part of the key is typed out. For example, if you press **2**, 2 is typed out; if you press **Shift + 2**, @ is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multimedia control, as indicated by the icon on the key. Press the function key to enable the task represented by the icon. For example, pressing F1 mutes the audio (see the table below).

However, if the function keys F1-F12 are needed for specific software applications, multimedia functionality can be disabled by pressing **Fn + Esc**. Later, multimedia control can be invoked by pressing **Fn** and the respective function key. For example, mute audio by pressing **Fn + F1**.

 **OBS:** You can also define the primary behavior of the function keys (F1–F12) by changing **Function Key Behavior** in the BIOS setup program.

Tabell 14. Function key primary behavior

Function key	Primary behavior
F1	Mute or unmute audio
F2	Decrease volume

Tabell 14. Function key primary behavior (fortsättning)

Function key	Primary behavior
F3	Increase volume
F4	Microphone Mute
F5	KB Illumination/Backlight
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display
F9	Stealth mode
F10	Print screen
F11	Home
F12	End

The **Fn** key is also used with selected keys on the keyboard to invoke secondary functions.

Tabell 15. Secondary behavior

Function key	Secondary behavior
Fn + F1	Operating system and application-specific F1 behavior
Fn + F2	Operating system and application-specific F2 behavior
Fn + F3	Operating system and application-specific F3 behavior
Fn + F4	Operating system and application-specific F4 behavior
Fn + F5	Operating system and application-specific F5 behavior
Fn + F6	Operating system and application-specific F6 behavior
Fn + F7	Operating system and application-specific F6 behavior
Fn + F8	Operating system and application-specific F8 behavior
Fn + F9	Operating system and application-specific F9 behavior
Fn + F10	Operating system and application-specific F10 behavior
Fn + F11	Operating system and application-specific F11 behavior
Fn + F12	Operating system and application-specific F12 behavior
Fn + Ctrl	Open the application menu
Fn + Esc	Toggle between multimedia and function key behavior
Fn + PgUp	Scroll up the document or page
Fn + PgDn	Scroll down the document or page
Fn + Home	Move to the beginning of the document
Fn + End	Move to the end of the document
Copilot	Launch Copilot in Windows OBS: If Copilot in Windows is not available on your computer, the Copilot key launches Recall. If both Recall and Copilot in Windows are not available on your computer, the Copilot key launches Windows Search. For more information about Copilot in Windows and Recall, search in the Knowledge Base Resource at the Dell Support Site.

Kamera

I följande tabell visas kameraspecifikationerna för din Dell Pro 14 Premium PA14250.

Tabell 16. Kameraspecifikationer

Beskrivning		Värden
Antalet kameror		Two
Kameratyp		There are 2 camera options: • IR Camera • IR Camera with Presence Detection (Synaptics)
Kameraplats		Front camera
Typ av kamerasensor		CMOS sensor technology
Kameraupplösning:		
	Stillbild	8.0 megapixel
	Video	2560x1440 at 30 fps i OBS: The default resolution for video is set at 1080p. For more information about changing the camera resolution, search for information about changing the camera resolution in Windows 11 at the Microsoft Support Site .
Upplösning med infraröd kamera		
	Stillbild	0.23 megapixel
	Video	640x360 at 30 fps
Diagonal betraktningvinkel:		
	Kamera	88.1 degrees
	Infraröd kamera	86.6 degrees

Styrplatta

I följande tabell visas specifikationerna för din styrplatta Dell Pro 14 Premium PA14250.

Tabell 17. Specifikationer för styrplatta

Beskrivning		Värden
Styrplattans upplösning:		>300 dpi
Styrplattans mått:		
	Vågrät	125 mm (4.92 in.)
	Lodrät	75 mm (2.95 in.)
Fingerrörelser på styrplattan		Mer information om styrplattans gester för Windows finns i Microsoft kunskapsbasartikeln på Microsofts supportwebbplats .

Touchpad with collaboration controls (optional)

The following table lists the touchpad specifications of your Dell Pro 14 Premium PA14250 (for computers shipped with Collaboration Touchpad).

Tabell 18. Touchpad specifications

Description		Values
Touchpad type		Collaboration Touchpad
Collaboration controls on touchpad		Four controls are available to control video, share screen, chat, and mute functions during conference calls. The controls are visible on the touchpad during any conference calls. Compatible with Zoom and Teams for work or school.
Collaboration controls settings		- Control brightness manually or configure icon brightness to automatically adjust to the ambient light. - Customize settings to activate collaboration controls with a single tap or a double tap. - Customize specific controls to be activated or deactivated.
Collaboration controls functionality		Video icon: Turn on or off the camera. - White icon: The camera is turned on. - Red icon: The camera is off. Share screen icon: Tap once to share your screen. Tap again to stop sharing. Chat icon: Show or hide the chat window. The icon blinks when you receive a new chat message. Microphone icon: Turn on or mute the microphone. - White icon: The microphone is turned on. - Red icon: The microphone is muted.
Required apps for collaboration controls		- Dell Optimizer Version 4.2.0.0 and higher - Zoom Client Version 5.9.3 and higher - Teams for work or school (Windows desktop) Version 1.6.00.24078 and higher
Touchpad resolution:		
	Horizontal	>300 dpi
	Vertical	Not supported
Touchpad dimensions:		
	Horizontal	125 mm (4.92 in.)
	Vertical	71 mm (2.79 in.)
Touchpad gestures		For more information about touchpad gestures available on Windows, see the Microsoft Knowledge Base article at Microsoft Support Site .
i OBS: To enjoy the collaboration touchpad (CTP) controls feature on your keyboard, ensure that you have the latest versions of the Dell Optimizer app and Zoom or Teams for work or school that is installed on your computer. Dell Optimizer offers a modular installation which allows you to select the modules you want to install. Install the collaboration touchpad module within the Dell Optimizer app to enjoy the functionality of collaboration controls. For more information, search for <i>Dell Optimizer</i> in the Knowledge Base Resource at the Dell Support Site. i OBS: For more information about how to configure and use your collaboration controls, search for the Collaboration Touchpad Reference Guide in the Knowledge Base Resource at Dell Support Site. Or, watch the video at Dell Collaboration Touchpad.		

Tabell 18. Touchpad specifications (fortsättning)

Description	Values
 OBS: Collaboration Touchpad is supported only on Teams for work or school (Windows desktop) application. Teams for home and Teams on web are not supported.	

Power adapter

The following table lists the power adapter specifications of your Dell Pro 14 Premium PA14250.

Tabell 19. Power-adapter specifications

Description	Option one	Option two	Option three
Type	60 W AC ultralight mini adapter, USB Type-C	65 W AC adapter, USB Type-C	100 W AC adapter, USB Type-C
Power-adapter dimensions:			
Height	22 mm (0.86 in.)	28 mm (1.10 in.)	26.50 mm (1.04 in.)
Width	55 mm (2.16 in.)	51 mm (2.01 in.)	60.00 mm (2.36 in.)
Depth	66 mm (2.59 in.)	112 mm (4.41 in.)	122.00 mm (4.80 in.)
Input voltage	100 VAC to 240 VAC	100 VAC to 240 VAC	100 VAC to 240 VAC
Input frequency	50 Hz to 60 Hz	50 Hz to 60 Hz	50 Hz to 60 Hz
Input current (maximum)	1.7 A	1.7 A	1.7 A
Output current (continuous)	20 V/3 A 15 V/3 A 9 V/3 A 5 V/3 A	20 V/3.25 A 15 V/3 A 9 V/3 A 5 V/3 A	20 V/5 A 15 V/3 A 9 V/3 A 5 V/3 A
Rated output voltage	20 VDC 15 VDC 9 VDC 5 VDC	20 VDC 15 VDC 9 VDC 5 VDC	20 VDC 15 VDC 9 VDC 5 VDC
Temperature range:			
Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
 CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.			

Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 2-cell, 40 Wh battery)

 **OBS:** If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements.

The following table lists the power adapter requirements for your Dell Pro 14 Premium PA14250.

Tabell 20. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	100 W
Power that charges the computer at a slower speed  OBS: A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 100 W
Minimum power that is required from a power adapter to operate the computer and charge the battery  OBS: A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	27 W
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	Supported  OBS: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported.  OBS: ExpressCharge mode must also be enabled in the BIOS Setup screen. Select Power > Battery Configuration > ExpressCharge , then press Enter .

Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 3-cell, 60 Wh battery)

 **OBS:** If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements.

The following table lists the power adapter requirements for your Dell Pro 14 Premium PA14250 (for computers that are shipped with 3-cell, 60 Wh battery).

Tabell 21. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	100 W
Power that charges the computer at a slower speed  OBS: A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 100 W
Minimum power that is required from a power adapter to operate the computer and charge the battery  OBS: A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	27 W
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	Supported  OBS: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported.  OBS: ExpressCharge mode must also be enabled in the BIOS Setup screen. Select Power > Battery Configuration > ExpressCharge , then press Enter .

Battery

The following table lists the battery specifications of your Dell Pro 14 Premium PA14250.

Tabell 22. Battery specifications

Description		Option one	Option two	Option three	Option four
Battery type		2-cell, 40 Wh, Lithium Ion, ExpressCharge 2.0, ExpressCharge Boost	2-cell, 40 Wh, Lithium Ion, ExpressCharge 2.0, ExpressCharge Boost, Long Life Cycle	3-cell, 60 Wh, Lithium Ion, ExpressCharge, ExpressCharge Boost	3-cell, 60 Wh, Lithium Ion, ExpressCharge, ExpressCharge Boost, Long Life Cycle
Battery voltage		7.80 VDC	7.80 VDC	11.70 VDC	11.70 VDC
Battery weight (maximum)		155 gm	155 gm	215 gm	215 gm
Battery dimensions:					
Height		6.15 mm (0.24 in.)	6.15 mm (0.24 in.)	6.15 mm (0.24 in.)	6.15 mm (0.24 in.)
Width		248 mm (9.76 in.)	248 mm (9.76 in.)	248 mm (9.76 in.)	248 mm (9.76 in.)
Depth		65.10 mm (2.56 in.)	65.10 mm (2.56 in.)	65.10 mm (2.56 in.)	65.10 mm (2.56 in.)
Temperature range:					
	Operating	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)
	Storage	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)
Battery operating time		Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Battery charging time (approximate) i OBS: You can control the charging time, duration, start and end time, and so on, using the settings on the MyDell application (Power option). For more information about MyDell application, search in the Knowledge Base Resource at Dell Support Site .		Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge 46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours

Tabell 22. Battery specifications (fortsättning)

Description	Option one	Option two	Option three	Option four
	16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge
Coin-cell battery	Not Supported	Not Supported	Not Supported	Not Supported
 CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.  CAUTION: Dell Technologies recommends that you charge the battery regularly for optimal power consumption.				

Bildskärm

I följande tabell visas bildskärmsspecifikationerna för Dell Pro 14 Premium PA14250.

Tabell 23. Bildskärmsspecifikationer

Beskrivning	Alternativ ett	Alternativ två	Alternativ tre
Bildskärms typ	Full High Definition Plus (FHD+)	Quad High Definition Plus (QHD+), Battery saving, ComfortView Plus	Full High Definition Plus (FHD+), Battery saving, ComfortView Plus
Pekalternativ	No	Yes	No
Bildskärmsteknik	Wide-viewing angle (WVA/IPS)	OLED	Wide-viewing angle (WVA/IPS)
Bildskärmens mått (aktivt område):			
Höjd	188.50 mm	188.50 mm	188.50 mm
Bredd	301.60 mm	301.60 mm	301.60 mm
Diagonalt	355.60 mm	355.60 mm	355.60 mm
Bildskärmens inbyggda upplösning	1920 x 1200	2880 x 1800	1920x1200
Luminans (typisk)	300 nits	400 nits	400 nits
Megapixel	2.3	5.1	2.3
Färgskala	100% sRGB	100% DCIP3	sRGB 100% typ.
Bildpunkter per tum (PPI)	162 ppi	242 ppi	162 ppi

Tabell 23. Bildskärmsspecifikationer (fortsättning)

Beskrivning	Alternativ ett	Alternativ två	Alternativ tre
Kontrastförhållande (typiskt)	800:1	1000000:1	1200:1
Svarstid (maximal)	35 ms	1 ms	35 ms
Uppdateringsfrekvens	30 Hz to 60 Hz	30 Hz to 60 Hz	30 Hz to 60 Hz
Horisontell visningsvinkel	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Vertikal visningsvinkel	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Bildpunktstäthet	0.11 mm x 0.15 mm	0.10 x 0.10 mm	0.15 x 0.15 mm
Strömförbrukning (maximal)	3.68 W	5.63 W	2.50 W
Med bländskydd kontra blank yta	Anti-glare	Anti-reflection	Anti-glare

Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Dell Pro 14 Premium PA14250.

 **OBS:** The fingerprint reader is on the power button.

Tabell 24. Fingerprint reader specifications

Description	Values
Sensor technology	Trans-capacitive sensing
Sensor resolution	500 dpi
Sensor pixel size	- X: 108 - Y: 88

Sensor

I följande tabell visas sensorn för din Dell Pro 14 Premium PA14250.

Tabell 25. Sensor

Sensor support
Accelerometer (ST Micro LIS2DW12TR): On the base of the system board
Accelerometer (ST Micro LIS2DW12TR): On the hinge-up mid-board in the upsell configuration of laptop MIPI RGB+IR camera
Ambient Light Sensor (optional)
Proximity for SAR compliance (for the WWAN module) Near Field Proximity Sensor
Hall Effect Sensor
Sensor Hub (integrated)

GPU—integrerad

I följande tabell visas specifikationerna för den integrerade grafikprocessorenheten (GPU) som stöds av din Dell Pro 14 Premium PA14250.

Tabell 26. GPU—integrerad

Styrenhet	Minnesstorlek	Processor
Intel Arc Graphics 130V	Shared system memory	Intel Core Ultra 5
Intel Arc Graphics 140V	Shared system memory	Intel Core Ultra 7

Multiple display support matrix

The following table lists the multiple display support matrix for your Dell Pro 14 Premium PA14250.

Tabell 27. Multiple display support matrix

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc Graphics	Not applicable	3	4

Säkerhet för maskinvara

I följande tabell visas hårsvarsäkerheten för din Dell Pro 14 Premium PA14250.

Tabell 28. Hardware security

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
Trusted Computing Group (TCG) Certification for TPM
SED SSD NVMe, SSD (Opal and non-Opal) per SDL
One wedge-shaped lock slot
SED (Opal 2.0 only - PCIe Interface)
Windows Hello - Fingerprint Reader (optional)
Mechanical privacy shutter for camera (only for metal laptops)
Chassis Intrusion Detection

Drift- och lagermiljö

I den här tabellen visas specifikationerna för drift och lagring av din Dell Pro 14 Premium PA14250.

Luftburen föroreningsnivå: G1 enligt ISA-S71.04-1985

Tabell 29. Datormiljö

Beskrivning	Drift	Lagring
Temperaturintervall	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relativ luftfuktighet (maximalt)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximal)*	0.66 GRMS	1.30 GRMS
Stöt (max):	110 G†	160 G†

Tabell 29. Datormiljö (fortsättning)

Beskrivning	Drift	Lagring
Höjdområde	-15.2 m to 3048 m (4.64 ft to 5518.4 ft)	-15.2 m to 10668 m (4.64 ft to 19234.4 ft)
 CAUTION: Drift- och lagringstemperaturintervallen kan variera mellan olika komponenter, så att använda eller förvara enheten utanför dessa intervall kan påverka prestandan hos enskilda komponenter.		

* Mätt med ett slumpmässigt vibrationsspektrum som simulerar användarmiljön.

† Mätt med en 2 ms halv sinuspuls.

Dells supportpolicy

Mer information Dells supportpolicy går att söka efter i kunskapsdatabasresursen på [Dells supportwebbplats](#).

ComfortView Plus

 **WARNING:** Prolonged exposure to blue light from the display may lead to long-term effects such as eye strain, eye fatigue, or damage to the eyes.

Blue light is a color in the light spectrum which has a short wavelength and high energy. Chronic exposure to blue light, particularly from digital sources may disrupt sleep patterns and cause long-term effects such as eye strain, eye fatigue, or damage to the eyes.

The display on this computer is designed to minimize blue light and complies with TÜV Rheinland's requirement for low blue light displays.

Low blue light mode is enabled at the factory, so no further configuration is necessary.

To reduce the risk of eye strain, it is also recommended that you:

- Position the display at a comfortable viewing distance between 20 and 28 inches (50 cm and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Take an extended break for 20 minutes every two hours.
- Look away from your display, and gaze at a distant object at 20 ft (609.60 cm) away for at least 20 seconds during each break.

Dell Optimizer

Dell Optimizer is an AI-based software application that allows you to customize your computer settings for power and battery, collaboration touchpad, and more.

For Dell Pro 14 Premium PA14250 with Dell Optimizer, you can:

- Extend the battery life of your computer with Intelligent Battery Extender and Dynamic Charge.
- Tune the performance, power consumption, cooling, and fan noise with selectable thermal modes.
- Access Zoom and Microsoft Teams meeting controls with the Collaboration Touchpad.
- Access and secure your computer depending on your physical presence.
- Download and redeem the apps that are purchased with your computer.

For more information about configuring and using these features, search for *Dell Optimizer* at the [Dell Support Site](#).

Arbeta inuti datorn

Säkerhetsanvisningar

Följ dessa säkerhetsföreskrifter för att skydda datorn och dig själv. Om inget annat anges antar varje procedur i detta dokument att du har läst säkerhetsinformationen som medföljde datorn.

-  **WARNING:** Läs säkerhetsinstruktionerna som levererades med datorn innan du arbetar i datorn. Mer information om bästa säkerhetspraxis finns på [Dells hemsida för regelefterlevnad](#).
-  **WARNING:** Koppla bort datorn från alla strömkällor innan du öppnar datorkåpan eller panelerna. När du är klar sätter du tillbaka alla kåpor, paneler och skruvar innan du ansluter datorn till eluttaget.
-  **CAUTION:** Undvik att datorn skadas genom att se till att arbetsytan är plan, torr och ren.
-  **CAUTION:** Du bör endast utföra felsökning och reparationer som godkänts eller anvisats av Dells team för teknisk support. Skador som uppstår till följd av service som inte har godkänts av Dell täcks inte av garantin. Se säkerhetsanvisningarna som kommer med produkten eller på [Dells hemsida för regelefterlevnad](#).
-  **CAUTION:** Jorda dig genom att röra vid en omålad metallyta, till exempel metallen på datorns baksida, innan du rör vid något inuti datorn. Medan du arbetar bör du med jämna mellanrum röra vid en olackerad metallyta för att avleda statisk elektricitet som kan skada de inbyggda komponenterna.
-  **CAUTION:** Undvik att komponenter och kort skadas genom att hålla dem i kanterna och undvika att vidröra stift och kontakter.
-  **CAUTION:** När du kopplar bort en kabel ska du alltid dra i dess kontakt eller dragflik, inte i själva kabeln. Vissa kablar har kontakter med låsflikar eller vingskruvar som måste lossas innan kabeln kan kopplas från. När du kopplar från kablar ska du rikta in dem rakt för att undvika att kontaktstiften böjs. När du ansluter kablar ska du se till att kontakten på kabeln är korrekt inriktad och i linje med porten.
-  **CAUTION:** Tryck in och mata ut eventuella kort från mediekortläsaren.
-  **CAUTION:** Var försiktig när du hanterar uppladdningsbara litiumjonbatterier i bärbara datorer. Svullna batterierna bör inte användas och bör bytas ut och avyttras rätt sätt.

Innan du arbetar inuti datorn

Steg

1. Spara och stäng alla öppna filer samt avsluta alla öppna program.
2. Stäng av datorn. För Windows-operativsystem klickar du på **Start** >  **Ström** > **Stäng av**.
 **OBS:** Om du använder ett annat operativsystem hittar du anvisningar i operativsystemets dokumentation.
3. Stäng av all monterad kringutrustning.
4. Koppla bort datorn från eluttaget.
5. Koppla bort alla anslutna nätverksenheter och all kringutrustning, t.ex. tangentbord, mus och bildskärm, från datorn.
6. Ta bort eventuella mediakort och optiska enheter från datorn, om det behövs.
7. Gå in i Serviceläge.

Serviceläge

Serviceläget används för att stänga av strömmen utan att koppla bort batterikabeln från moderkortet innan reparationer görs i datorn.

 **CAUTION:** Om du inte kan slå på datorn för att försätta den i serviceläge kopplar du bort batterikabeln. Följ stegen i **Ta bort batteriet för att koppla bort batterikabeln.**

 **OBS:** Kontrollera att datorn är avstängd och att nätaggregatet är frånkopplat.

- a. Håll ner B-tangenten och strömbrytaren i tre sekunder eller tills Dell-logotypen visas på skärmen.
- b. Tryck på valfri tangent för att fortsätta.
- c. Om nätaggregatet inte har kopplats bort visas ett meddelande på skärmen där du uppmanas att koppla bort nätaggregatet. Koppla bort nätaggregatet och tryck sedan på valfri tangent för att gå in i Serviceläge. Proceduren för Serviceläge hoppar automatiskt över detta steg om datorns **Ägartagg** inte har förinställts av användaren.
- d. När meddelandet **ready-to-proceed** visas på skärmen trycker du på valfri tangent för att fortsätta. Datorn avger tre korta pip och stängs av omedelbart.
Datorn stängs av och går in i Serviceläge.

Säkerhetsföreskrifter

I det här avsnittet beskrivs de första stegen som ska följas innan du utför demonteringsinstruktioner.

Observera följande säkerhetsföreskrifter innan du utför installationer eller fel-/åtgärdsprocedurer som innebär demontering eller montering:

- Stäng av datorn och all ansluten kringutrustning.
- Koppla bort datorn från växelströmmen.
- Koppla bort alla nätverkskablar och all kringutrustning från datorn.
- Använd ett ESD-fältservicekit när du arbetar inom någon för att undvika skador på elektrostatisk urladdning (ESD).
- Placera den borttagna komponenten på en antistatisk matta när du har tagit bort den från datorn.
- Använda skor med icke-ledande gummisulor för att minska risken för elektrisk stöt.
- Genom att koppla ur, trycka på och hålla strömbrytaren intryckt i 15 sekunder ska den återstående strömmen i moderkortet laddas ur.

Standby ström

Dell-produkter med standby-ström måste kopplas ur innan du öppnar baksidan. System med standby-ström är strömförande när de är avstängda. Den interna strömmen gör att datorn kan stängas av (Wake-on-LAN), och stängs av i viloläge och har andra avancerade strömhanteringsfunktioner.

Förbindelse

Förbindelse är en metod för att ansluta två eller flera jordledare till samma elektriska potential. Detta görs med hjälp av ett ESD-fältservicekit. Vid anslutning av en bindningstråd är det viktigt att den är ansluten till bar metall och aldrig till en målade eller icke-metallyta. Se till att handledsremmen sitter säkert och har full kontakt med huden. Ta av dig alla smycken, exempelvis klockor, armband och ringar, innan du jordar dig själv och utrustningen.

Elektrostatisk urladdning, ESD-skydd

ESD är ett stort problem när du hanterar elektroniska komponenter, särskilt känsliga komponenter såsom expansionskort, processorer, minnesmoduler och moderkort. Liten belastning kan skada kretsarna på ett sätt som kanske inte är uppenbart, men som kan ge tillfälliga problem eller förkortad produktlivslängd. Eftersom det finns påtryckningar i branschen för lägre strömkrav och högre densitet blir ESD-skyddet allt viktigare att tänka på.

Två erkända typer av skador orsakade av ESD är katastrofala och tillfälliga fel.

- **Katastrofala** – ungefär 20 procent av alla ESD-relaterade fel utgörs av katastrofala fel. I dessa fall ger skada upphov till en omedelbar och fullständig förlust av funktionaliteten. Ett exempel på ett katastrofalt fel är när ett DIMM-minne utsätts för en statisk stöt och systemet omedelbart visar meddelandet "No POST/No Video" (inget starttest/ingen video) och avger en ljudkod för avsaknad av eller ej fungerande minne.
- **Tillfälliga** – tillfälliga fel representerar cirka 80 procent av de ESD-relaterade felen. Den höga andelen tillfälliga fel innebär att de flesta gånger som skador uppstår kan de inte identifieras omedelbart. Minnesmodulen utsätts för en statisk stöt, men spårningen försvagas knappt och ger inte omedelbart några symtom utåt som är relaterade till skadan. Det kan ta flera veckor eller månader för det försvagade spåret att smälta och under tiden kan det uppstå försämringar av minnesintegriteten, tillfälliga minnesfel och så vidare.

Återkommande fel som även kallas latent eller "walking wounded" är svåra att upptäcka och felsöka.

Utför följande åtgärder för att förhindra ESD-skador:

- Använd ett kabelanslutet ESD-armband som är korrekt jordat. Trådlösa antistatiska armband ger inte tillräckligt skydd. Det räcker inte med att röra vid chassit innan du hanterar delar för att få ett garanterat ESD-skydd för delar med ökad ESD-känslighet.
- Hantera alla komponenter som är känsliga för statisk elektricitet på en plats som är skyddad mot elektrostatiska urladdningar. Använd om möjligt antistatiska golvplattor och skrivbordsunderlägg.
- Ta inte ut en komponent som är känslig för statisk elektricitet från sin förpackning förrän du är redo att installera komponenten. Innan du packar upp den antistatiska förpackningen använder du den antistatiska armbandet till att ladda ur den statiska elektriciteten från kroppen. Mer information om armbandet och ESD-armbandstestaren finns i [Komponenterna i ett ESD-fältservicekit](#).
- Innan du transporterar en komponent som är känslig för statisk elektricitet ska du placera den i en antistatisk behållare eller förpackning.

ESD-fältservicekit

Det oövakade fältservicekittet är det servicekit som oftast används. Varje fältservicekit innehåller tre huvudkomponenter: antistatisk matta, armband och bindningstråd.

 **CAUTION:** Det är viktigt att hålla enheter som är känsliga för statisk elektricitet borta från inre delar som är isolerade och ofta innehåller mycket elektricitet, till exempel kylflänsars plasthöljen.

Arbetsmiljö

Innan du använder ESD-fältservicekittet bör du bedöma situationen på kundens plats. Till exempel är implementering av kittet för en servermiljö annorlunda än för en stationär eller bärbar miljö. Servrar installeras vanligtvis i ett rack i ett datacenter; stationära datorer eller bärbara datorer placeras vanligtvis på kontorsdiskar eller i hytter. Leta alltid efter ett stort, öppet, platt arbetsområde som är fritt och tillräckligt stort för att använda ESD-kittet med extra utrymme för att rymma typen av dator som repareras. Arbetsytan bör också vara fri från isolatorer som kan orsaka en ESD-händelse. På arbetsområdet ska isolatorer som frigolit och annan plast alltid flyttas minst 12 tum eller 30 centimeter bort från känsliga delar före fysisk hantering av hårdvarukomponenter.

ESD-förpackning

Alla ESD-känsliga enheter måste skickas och tas emot i statisk säker förpackning. Metall, statiska skärmade väskor föredras. Du ska dock alltid returnera den skadade komponenten med samma ESD-påse och förpackning som den nya delen kom i. ESD-påsen ska vikas över och täppas av och allt samma skumförpackningsmaterial ska användas i originalboxen som den nya delen kom i. ESD-känsliga enheter ska endast tas bort från förpackningen på en ESD-skyddad arbetsyta, och delar ska aldrig placeras ovanpå ESD-påsen eftersom endast insidan av påsen är avskärmad. Placera alltid delar i handen, på den antistatiska mattan, i datorn eller inuti en ESD-påse.

Komponenter i ett ESD-fältservicekit

Komponenterna i ett ESD-fältservicekit:

- **Antistatisk matta** – Den antistatiska mattan är avledande och delar kan placeras på den under serviceprocedurer. Vid användning av en antistatisk matta ska armbandet sitta ordentligt och bindtråden ska vara ansluten till den antistatiska mattan och till alla oskyddade metallytor på datorn som bearbetas. När de har installerats på rätt sätt kan servicedelar avlägsnas från ESD-påsen och placeras direkt på den antistatiska mattan. ESD-känsliga föremål är skyddade i din hand, på den antistatiska mattan, i datorn eller i en ESD-påse.
- **Armband och bindningstråd** – Armbandet och bindningstråden kan antingen vara direkt anslutna mellan handleden och den oskyddade metallen på hårdvara om den antistatiska mattan inte är nödvändig eller vara anslutna till den antistatiska mattan för att skydda hårdvara som tillfälligt placeras på mattan. Den fysiska anslutningen av armbandet och bindningstråden mellan din hud, den antistatiska mattan och hårdvaran kallas bindning. Använd endast fältservicekit med armband, antistatisk matta och bindningstråd. Använd aldrig trådlösa band. Var försiktig: Tänk alltid på att trådarna i ett armband ofta skadas genom normalt slitage och måste kontrolleras regelbundet med en armbandstestare för att undvika oavsiktlig skada på ESD-hårdvaran. Vi rekommenderar att du provar armbandet och bindningstråden minst en gång per vecka.
- **Testare för ESD-armband** – Trådarna inuti ett ESD-armband är benägna att ta skada med tiden. När du använder en oövervakad sats bör du regelbundet testa armbandet före varje underhållsåtgärd och minst en gång per vecka. En armbandstestare är den bästa metoden för att göra detta test. Genomför testet genom att ansluta armbandets bindningstråd till testaren medan det är fastsatt på din handled och tryck på knappen för att testa. En grön lysdiod tänds om testet är framgångsrikt. En röd LED lyser och ett larm låter om testet misslyckas.

 **OBS:** Vi rekommenderar att den traditionella trådbundna ESD-jordledsremmen och den skyddande antistatiska mattan alltid används vid service av Dell-produkter. Dessutom är det viktigt att känsliga delar hålls separerade från alla isolatordelar medan underhåll utförs på datorn.

Transport av känsliga komponenter

Vid transport av ESD-känsliga komponenter, såsom reservdelar eller delar som ska returneras till Dell, är det viktigt att placera dessa delar i antistatiska påsar för säker transport.

När du har arbetat inuti datorn

Om denna uppgift

 **CAUTION:** Kvarglömnda och lösa skruvar inuti datorn kan allvarligt skada datorn.

Steg

1. Sätt tillbaka alla skruvar och kontrollera att inga lösa skruvar finns kvar inuti datorn.
2. Anslut eventuella externa enheter, kringutrustning och kablar som du tog bort innan arbetet på datorn påbörjades.
3. Sätt tillbaka eventuella mediekort och diskar samt andra delar som du tog bort innan arbetet på datorn påbörjades.
4. Anslut datorn till eluttaget.

 **OBS:** För att lämna serviceläget ser du till att ansluta nätadaptern till nätadapterporten på datorn.

5. Tryck på strömbrytaren om du vill sätta på datorn.

BitLocker

 **CAUTION:** Om BitLocker inte stängs av innan BIOS uppdateras identifieras inte BitLocker-nyckeln nästa gång du startar om datorn. Du uppmanas då att ange återställningsnyckeln för att gå vidare, och vid varje omstart visas en uppmaning om att ange återställningsnyckeln. Om du inte har återställningsnyckeln kan detta resultera i dataförlust eller en ominstallation av operativsystemet. Mer information finns i kunskapsbasartikeln om att [uppdatera BIOS på Dell-system med BitLocker aktiverat](#).

Installation av följande komponenter utlöser BitLocker:

- Hårddisk eller SSD-disk
- Moderkort

Rekommenderade verktyg

Procedurerna i detta dokument kan kräva att följande verktyg används:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe

Skruvlista

 **OBS:** När du tar bort skruvarna från en komponent rekommenderar vi att du noterar skruvtyp, antalet skruvar och sedan placerar dem i en skruvförvaringslåda. Detta är för att säkerställa att rätt antal skruvar och korrekt skruvtyp används när komponenten sätts tillbaka.

 **OBS:** Vissa datorer har magnetiska ytor. Kontrollera att skruvarna inte blir kvar på sådana ytor när du sätter tillbaka en komponent.

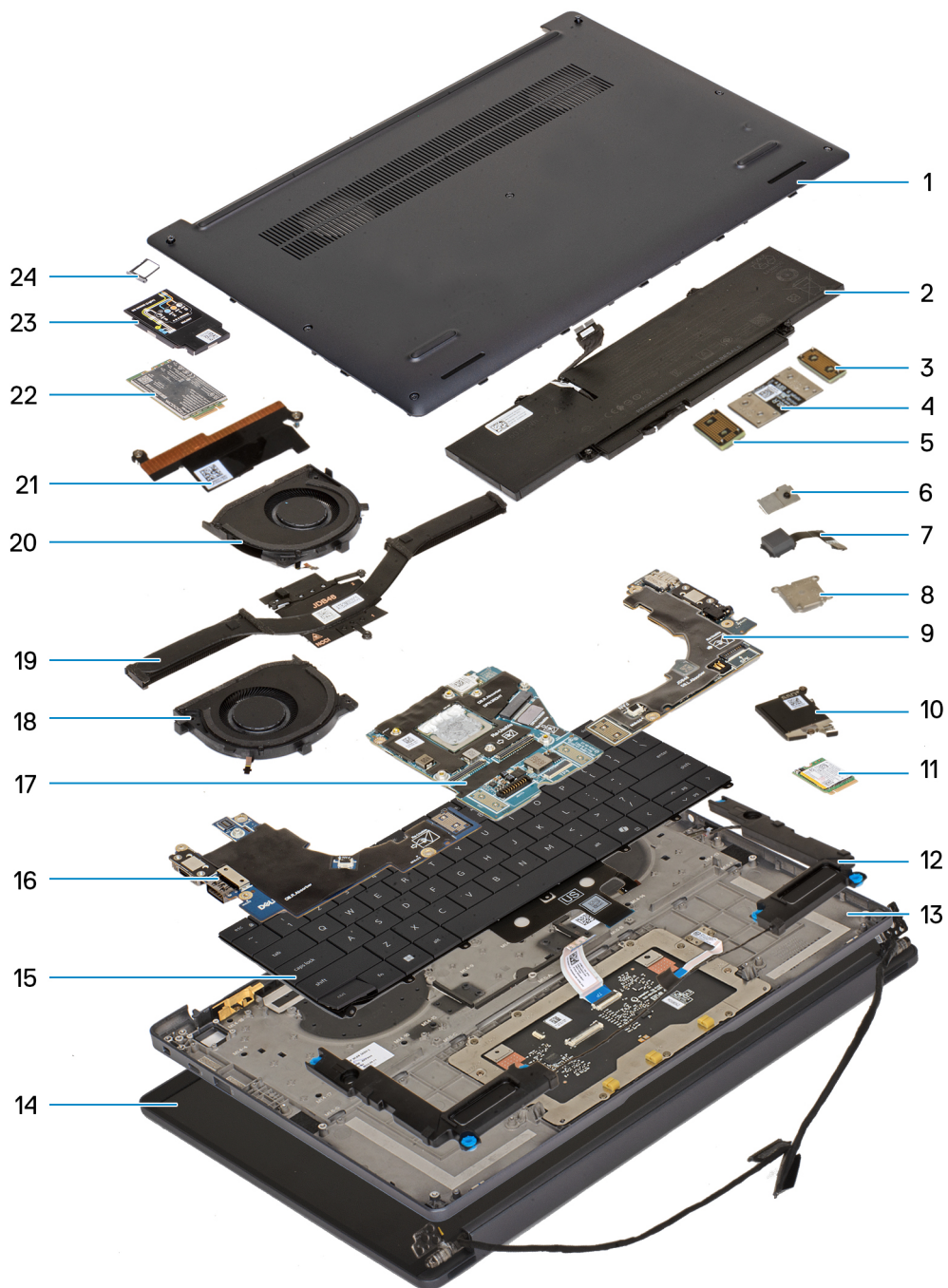
 **OBS:** Skruvfärgen kan variera beroende på vilken konfiguration som beställts.

Tabell 30. Screw list

Component	Screw type	Quantity	Screw image
Base cover	M2.5x7 (Captive screw)	7	
Solid state drive (SSD) shield	M1.6x2 (Captive screw)	2	
WLAN bracket	M1.6x5.5 (Captive screw)	1	
Battery	M2x4.5 (Captive screw)	4	
WWAN-card bracket	M1.6x2.3 (Captive screw)	1	
Right fan	M1.6x3	2	
Left fan	M1.6x3	2	
Heat sink	M2x3.5 (Captive screw)	3	
Speaker	M2x2	6	
Left I/O-board	M1.6x5.5	4	 
	M1.6x2.5	3	
Right I/O-board	M1.6x5.5	4	 
	M1.6x2.5	4	
Left USB Type-C module	M2x5	2	
Right USB Type-C module	M2x5	2	
Power-button bracket	M1.6x2.3 (Captive screw)	1	
EDP-cable bracket	M1.6x5.5 (Captive screw)	2	
Display hinges	M2.5x5	6	
System board	M1.6x2.5	1	
Keyboard	M1.4x1.2	18	 
	M1.6x2	7	

Huvudkomponenter i Dell Pro 14 Premium PA14250

Följande bild visar huvudkomponenterna för Dell Pro 14 Premium PA14250.



Figur 9. Major Components of your system/exploded view

1. Base cover
2. Battery
3. Interposer board
4. I/O-board FPC
5. Interposer board
6. Power button
7. Fingerprint reader

8. Power-button bracket
9. Right I/O-board
10. Solid state drive (SSD) shield
11. Solid state drive (SSD)
12. Speakers
13. Palm-rest assembly
14. Display assembly
15. Keyboard
16. Left I/O-board
17. System board
18. Right fan
19. Heat sink
20. Left fan
21. EDP-cable bracket
22. WWAN card
23. WWAN-card shield
24. nano-SIM card tray

 **OBS:** Dell provides a list of components and their part numbers for the original computer configuration purchased. These parts are available according to warranty coverage purchased by the customer. Contact your Dell sales representative for purchase options.

Ta bort och installera enheter som kan bytas av kund (CRU:er)

De utbytbara komponenterna i detta kapitel är enheter som kan bytas av kund (CRU:er).

 **CAUTION:** Kunder kan endast byta ut CRU-delar, i enlighet med säkerhetsåtgärder och utbytesprocedurer.

 **OBS:** Bilderna i det här dokumentet kan skilja från din dator beroende på konfigurationen du beställde.

nano-SIM card tray

Removing the nano-SIM card tray

Förutsättningar

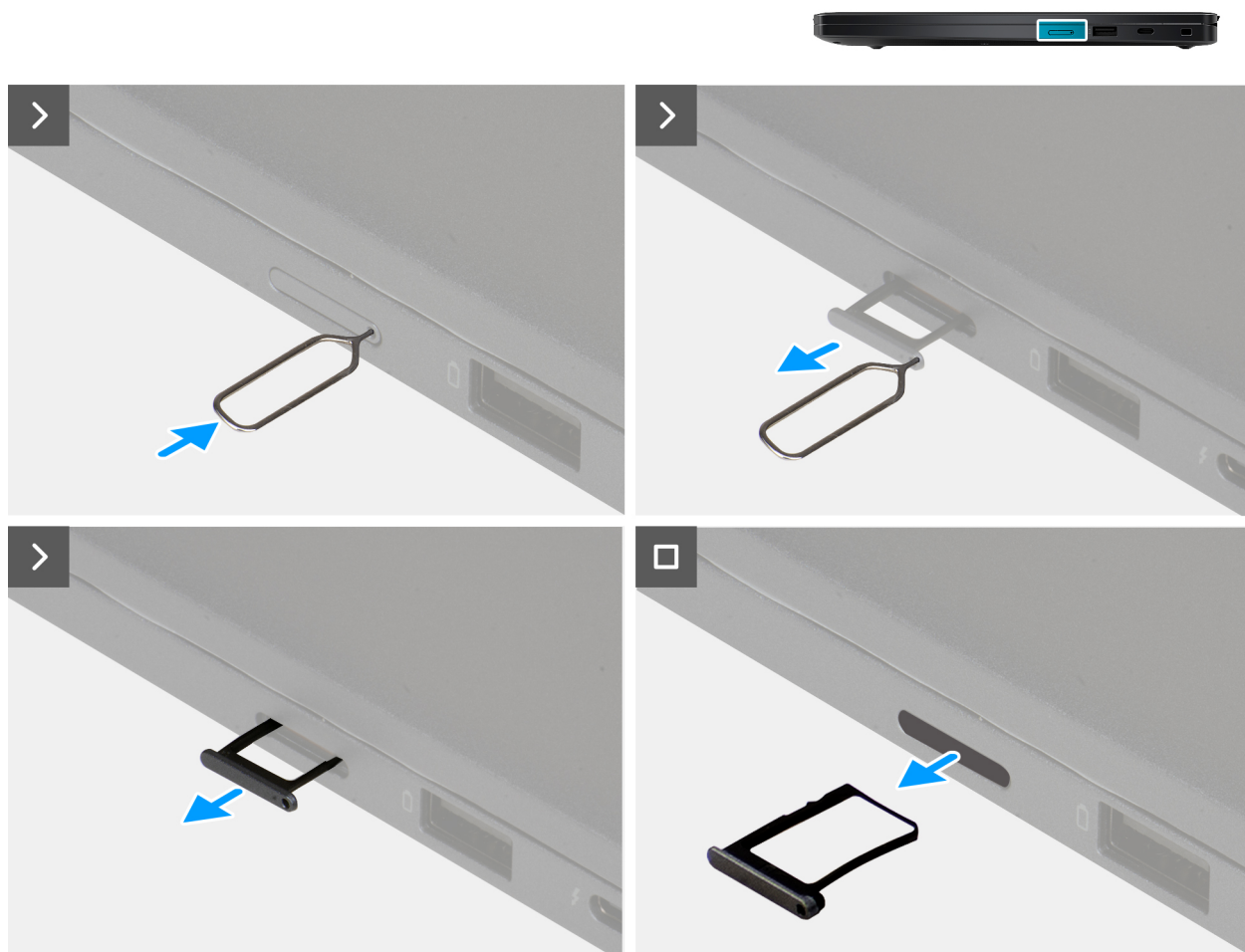
1. Follow the procedure in [Before working inside your computer](#).

 **OBS:** Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

Om denna uppgift

 **OBS:** This procedure applies only to computers shipped with a nano-SIM card tray installed. No pre-removals for models shipped without WWAN antennas.

The following images indicate the location of the nano-SIM card tray and provide a visual representation of the removal procedure.



Figur 10. Removing the nano-SIM card tray

Steg

1. Insert a pin into the release hole of the nano-SIM card tray and push inward until the tray is released.
2. Push the SIM-ejector pin to disengage the lock, and eject the nano-SIM card tray.
3. Slide the nano-SIM card tray out of the slot on the computer.

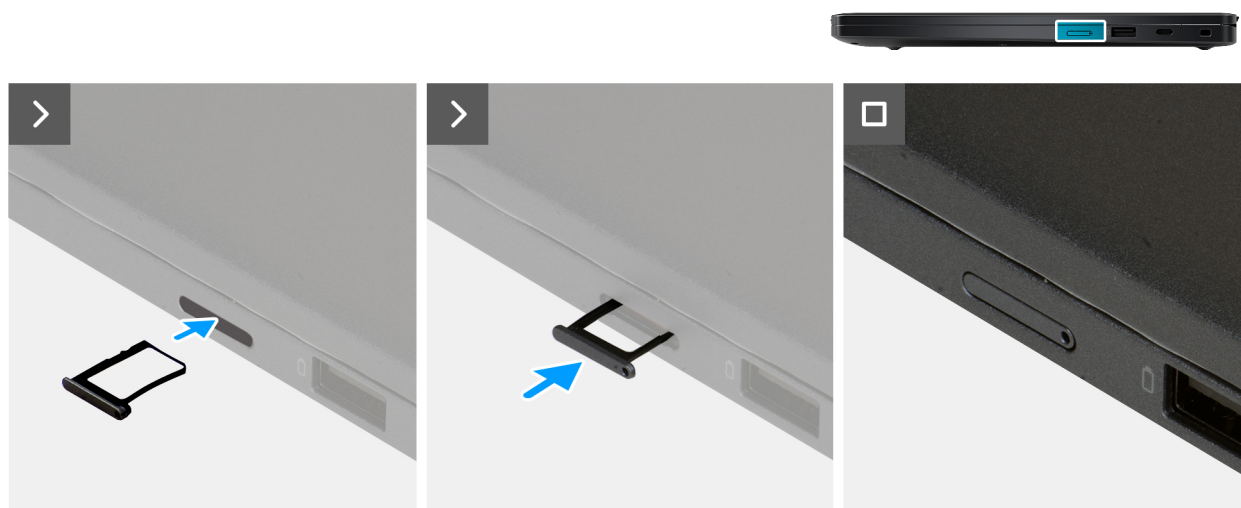
Installing the nano-SIM card tray

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following images indicate the location of the nano-SIM card tray and provide a visual representation of the installation procedure.



Figur 11. Installing the nano-SIM card tray

Steg

Align the nano-SIM card tray with the slot on the computer and carefully slide it in.

Nästa Steg

1. Follow the procedure in [After working inside your computer](#).

nano-SIM card

Removing the nano-SIM card

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).

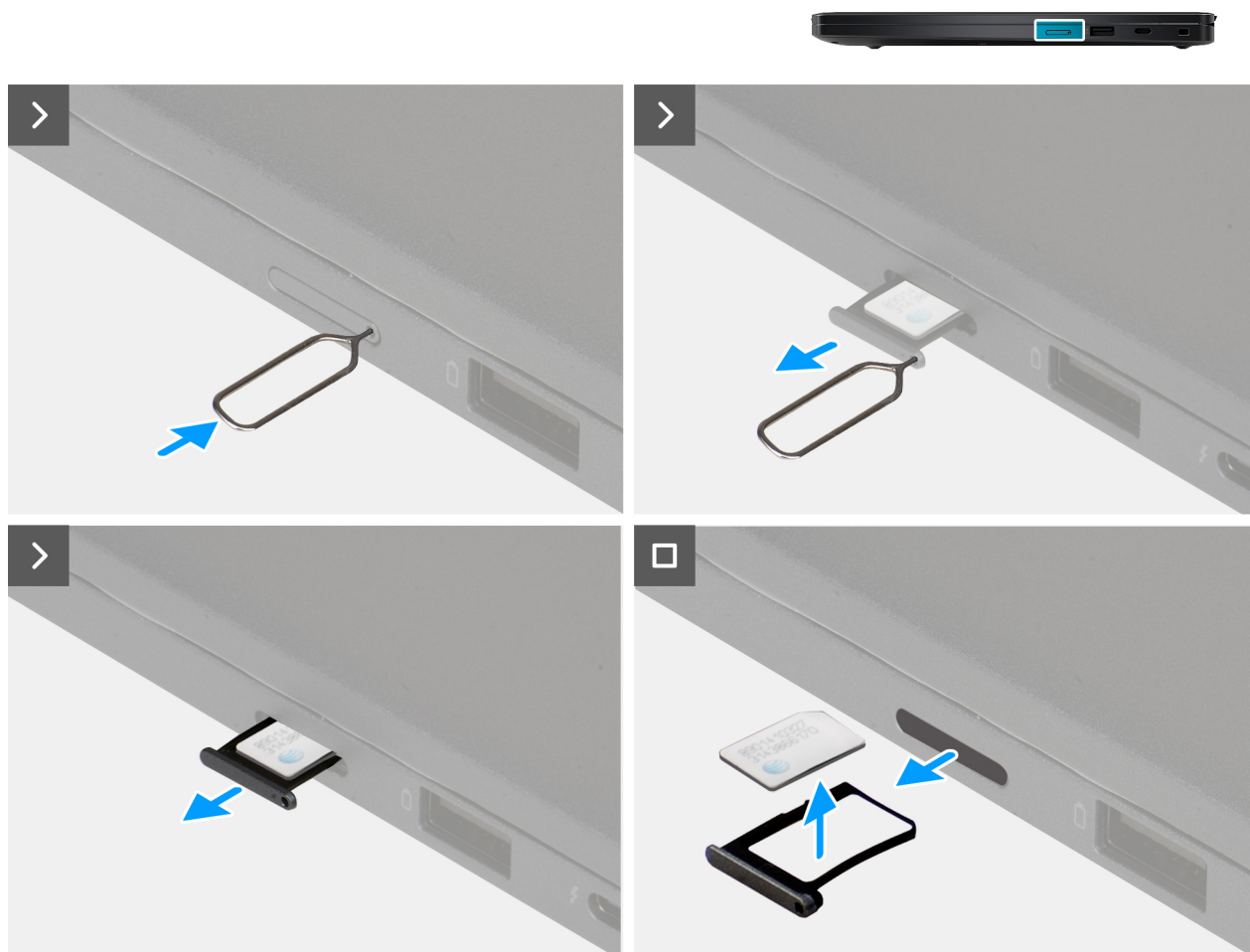
i **OBS:** Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

2. Remove the [nano-SIM card tray](#).

⚠ CAUTION: Removing the nano-SIM card when the computer is turned on can cause data loss or damage the card. Ensure that your computer is turned off or the network connections are disabled.

Om denna uppgift

The following images indicate the location of the nano-SIM card and provide a visual representation of the removal procedure.



Figur 12. Removing the nano-SIM card

Steg

1. Insert a SIM-ejector pin into the release hole to release the nano-SIM card tray.
2. Push the SIM-ejector pin to disengage the lock, and eject the nano-SIM card tray.
3. Slide the nano-SIM card tray out of the slot on the computer.
4. Remove the nano-SIM card from the nano-SIM card tray.

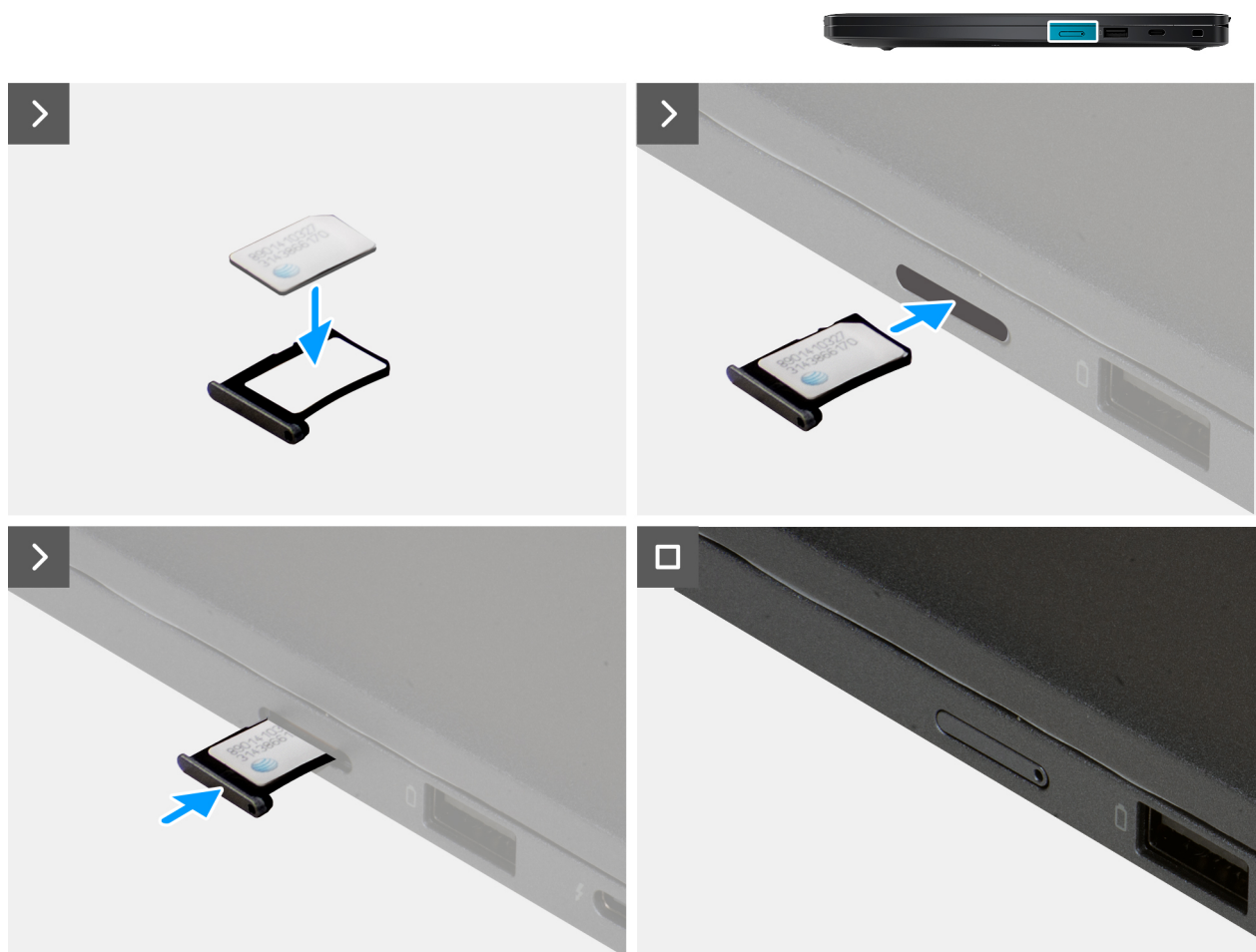
Installing the nano-SIM card

Förutsättningar

If you are replacing a component, remove the existing component before performing the installation procedure.

Om denna uppgift

The following images indicate the location of the nano-SIM card and provide a visual representation of the installation procedure.



Figur 13. Installing the nano-SIM card

Steg

1. Align and place the nano-SIM card into the nano-SIM card tray with the metallic contact facing up.
2. Align the nano-SIM card tray with the slot on the computer and carefully slide it in.

Nästa Steg

1. Install the [nano-SIM card tray](#).
2. Follow the procedure in [After working inside your computer](#).

Kåpa

Removing the base cover

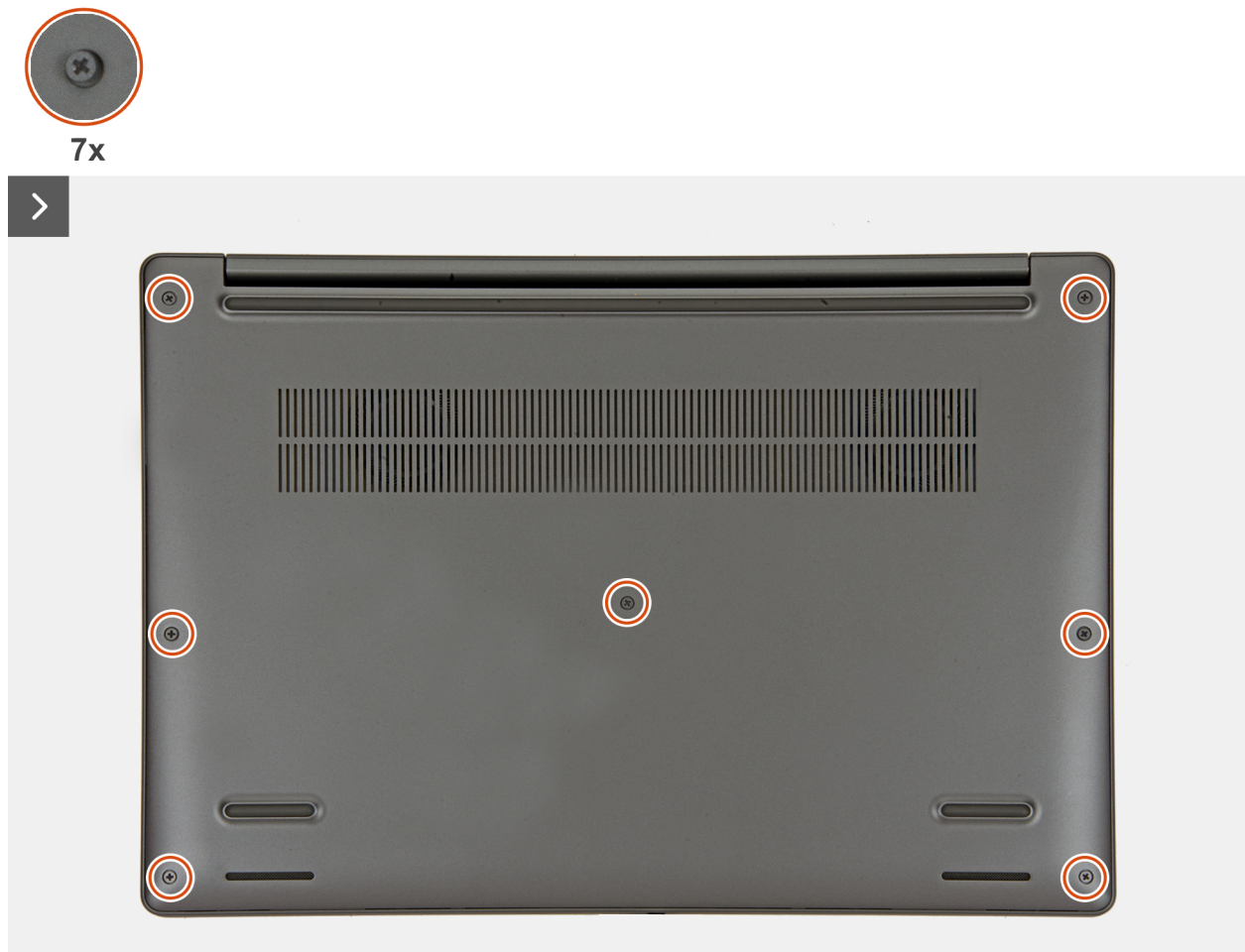
Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).

i | **OBS:** Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

Om denna uppgift

The following images indicate the location of the base cover and provide a visual representation of the removal procedure.



Figur 14. Loosen the captive screws

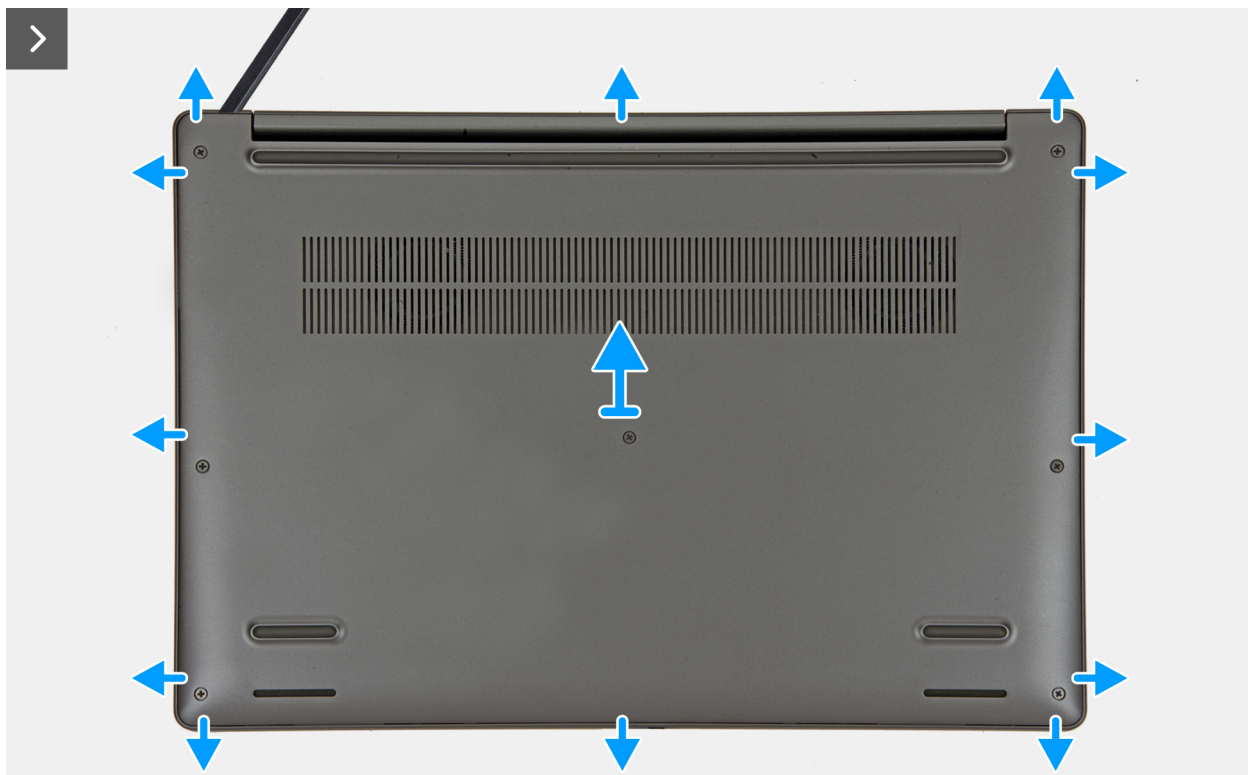


Figure 15. Removing the base cover

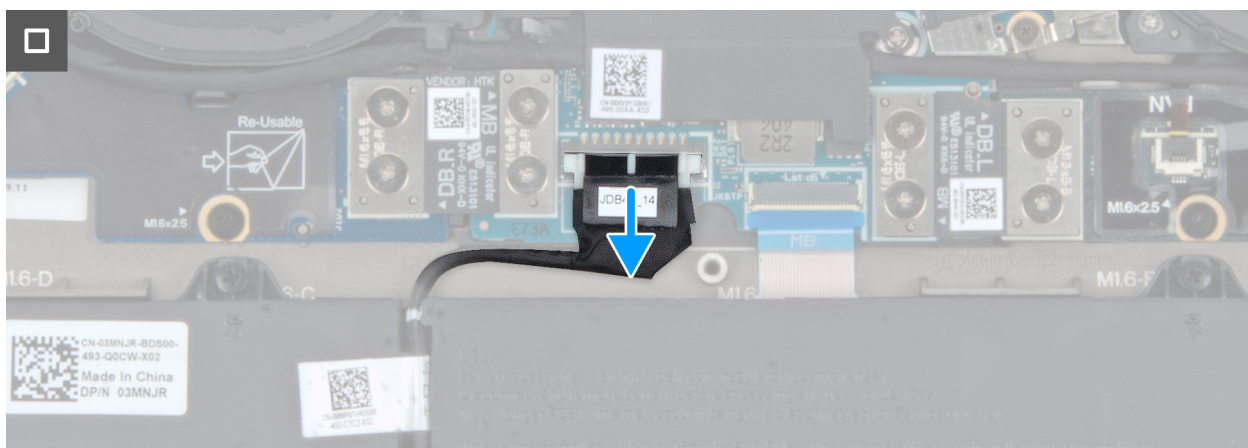


Figure 16. Disconnect the battery cable from the system board

Step

1. Loosen the seven captive screws that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.
 - CAUTION:** Do not slide the scribe through the edge of the top side of the base cover as it damages the latches inside the base cover.
 - CAUTION:** Do not pry upwards from the edge near the vents, at the top side of the base cover, as it damages the base cover.
3. Pry open the top side of the base cover and continue working on the left, right and, bottom sides to open the base cover.
4. Lift the base cover from the left and right sides and remove the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the system board.

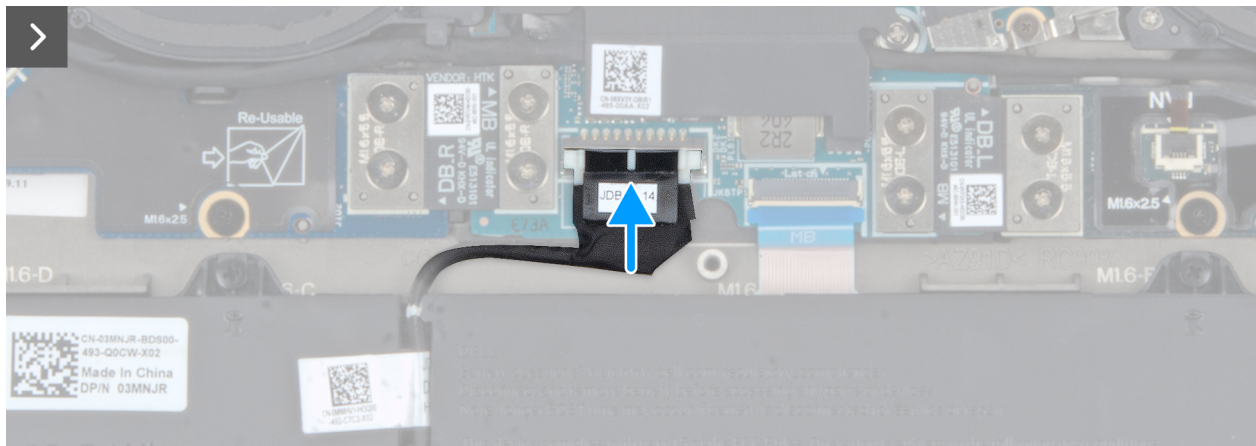
Installing the base cover

Förutsättningar

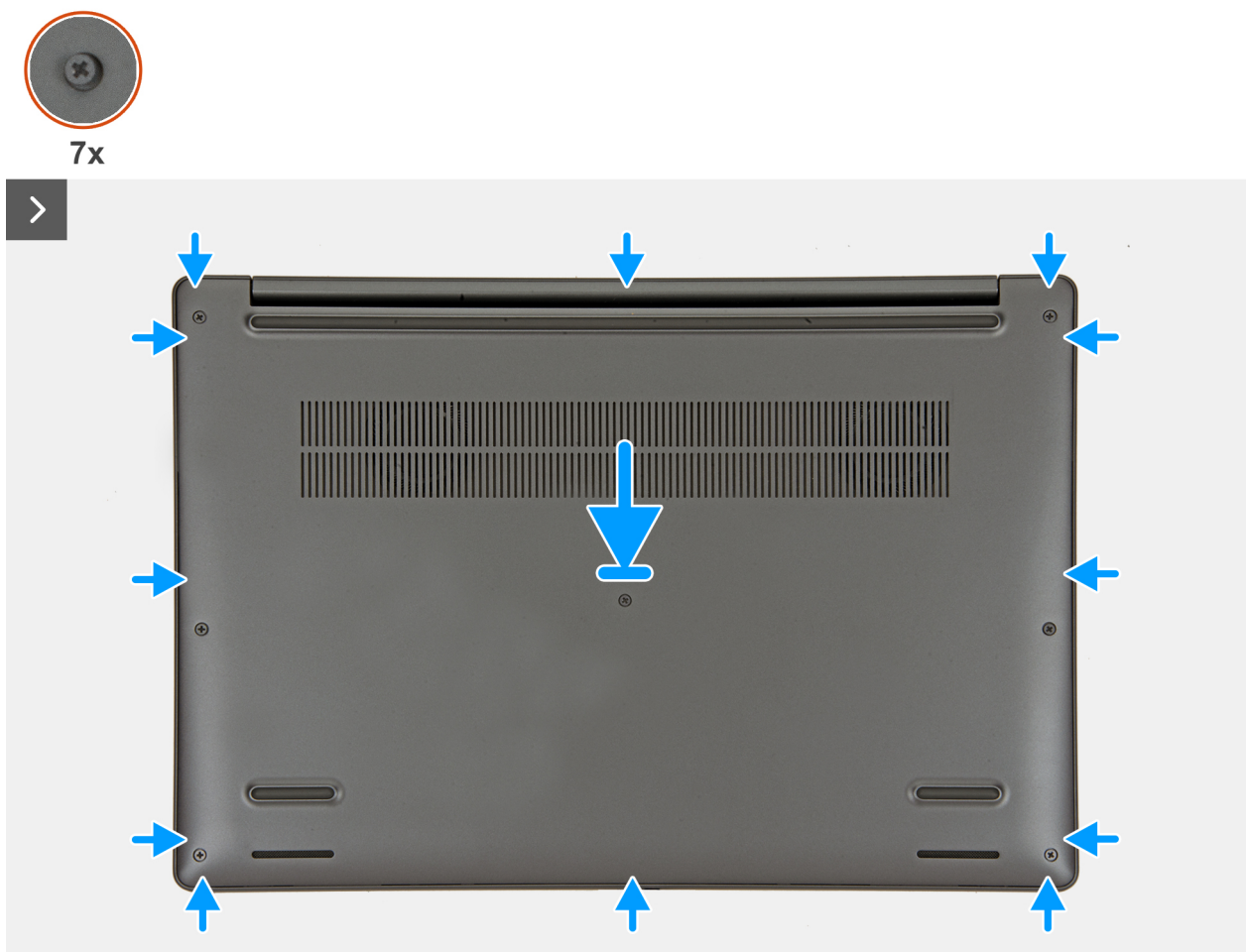
If you are replacing a component, remove the existing component before performing the installation procedure.

Om denna uppgift

The following images indicate the location of the base cover and provide a visual representation of the installation procedure.



Figur 17. Connect the battery battery cable to the system board



Figur 18. Installing the base cover



Figur 19. Tighten the captive screws

Steg

1. Connect the battery cable to the battery-cable connector on the system board.
2. Place the base cover on top of the palm-rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, and snap the base cover into place.
4. Tighten the seven captive screws to secure the base cover to the palm-rest and keyboard assembly.

Nästa Steg

1. Follow the procedure in [After working inside your computer](#).

Batteri

Försiktighetsåtgärder för laddningsbara litiumjonbatterier

CAUTION:

- Var försiktig när du hanterar laddningsbara litiumjonbatterier.
- Lossa batteriet helt innan det tas bort. Koppla bort växelströmsadaptern från datorn och driv datorn enbart på batteriström – batteriet är helt urladdat om datorn inte längre slås på när strömbrytaren trycks in.
- Undvik att krossa, tappa, skada eller tränga in i batteriet med främmande föremål.
- Utsätt inte batteriet för höga temperaturer eller montera isär batteripaketen och -cellerna.
- Tryck inte på batteriets yta.
- Böj inte batteriet.
- Använd inte verktyg av något slag för att bända på eller mot batteriet.
- För att förhindra oavsiktlig punktering eller skada på batteriet och andra komponenter, se till att inga försvinner eller tappas bort vid service av denna produkt.

- Om batteriet sitter fast i datorn på grund av svullnad, försök inte frigöra det som punktering, böjning eller krossning av ett laddningsbart litiumjonbatteri kan vara farligt. Kontakta i dessa fall Dell tekniska support för hjälp. Se [Kontakta supporten på Dells supportwebbplats](#).
- Köp alltid äkta batterier från [Dells webbplats](#) eller auktoriserade Dell-partners och återförsäljare.
- Svullna batterierna bör inte användas och bör bytas ut och avyttras rätt sätt. Riktlinjer för hur du hanterar och byter ut svullna laddningsbara litiumjonbatterier finns i [Hantera svullna laddningsbara litiumjonbatterier](#).

Removing the battery

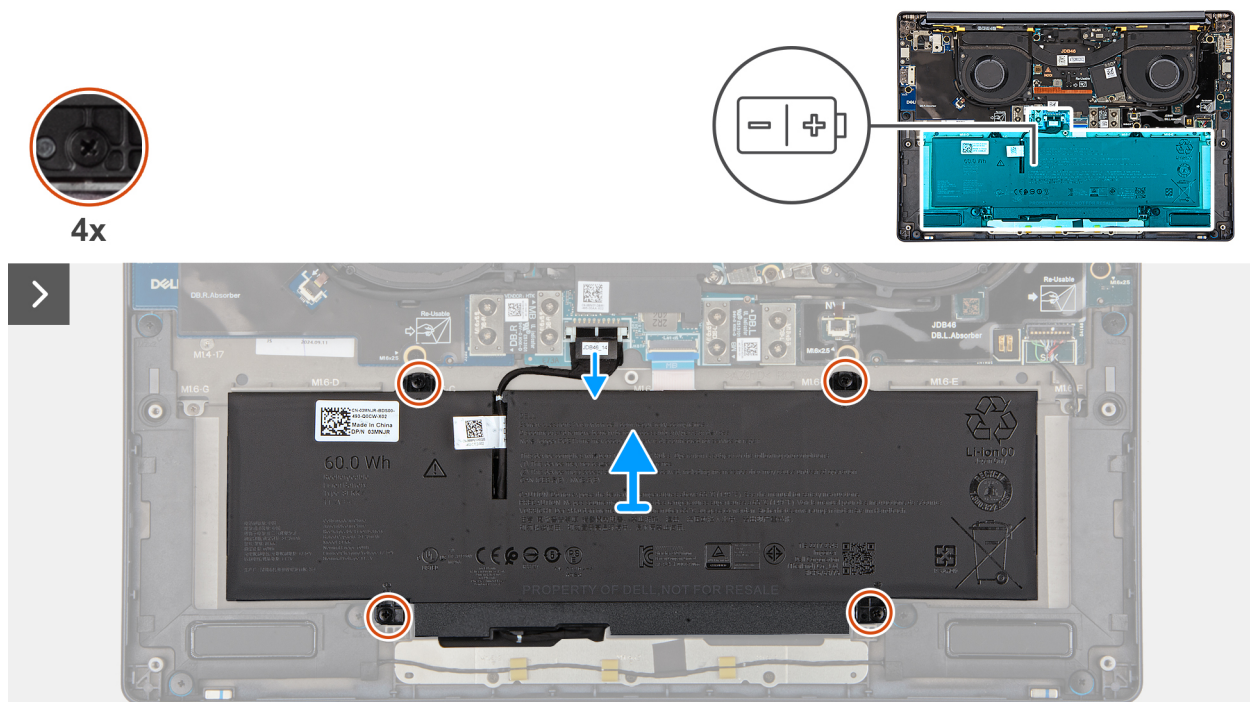
Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

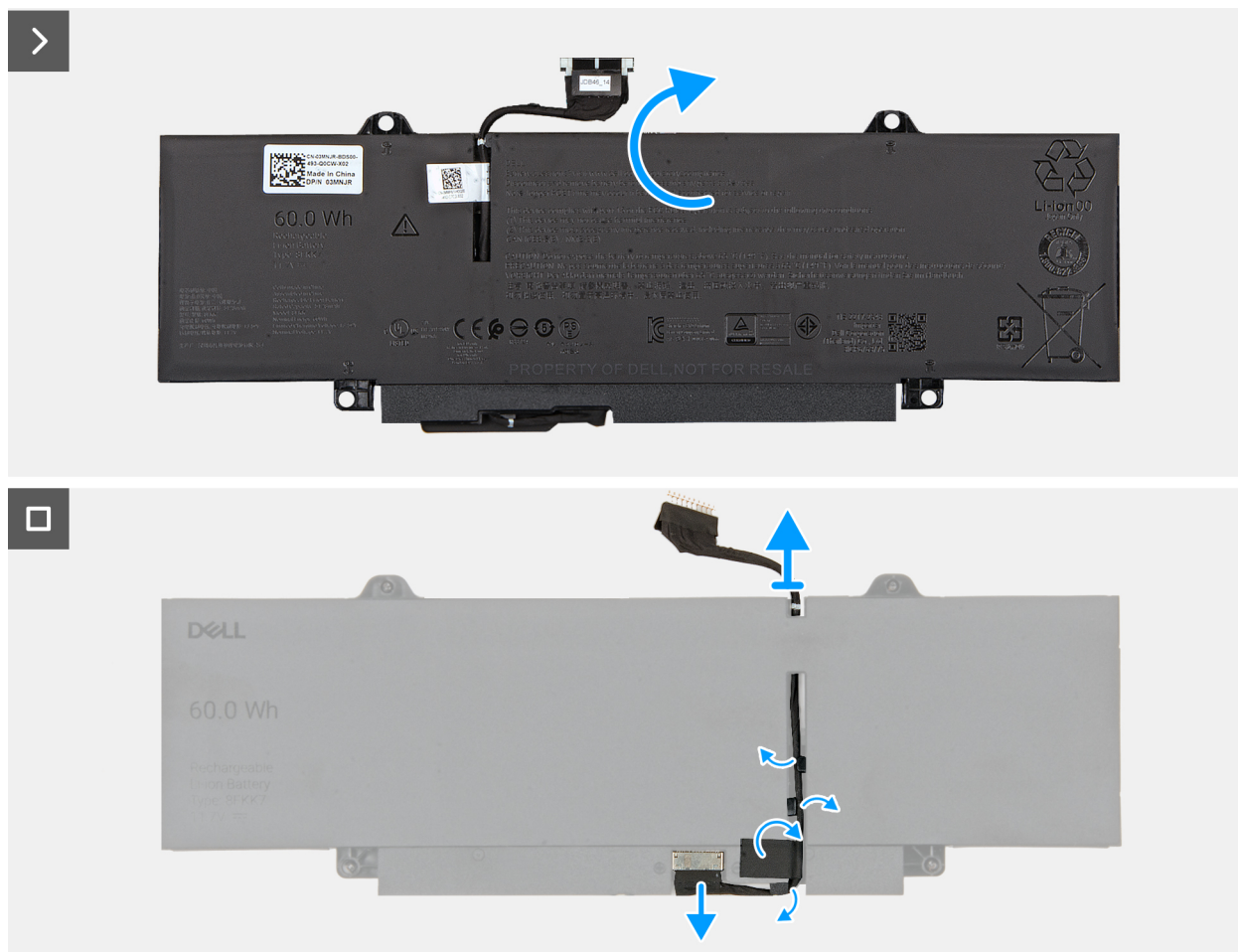
Om denna uppgift

CAUTION: Removing the battery resets the BIOS setup settings to default. It is recommended that you note the BIOS setup settings before removing the battery.

The following images indicate the location of the battery and provide a visual representation of the removal procedure.



Figur 20. Loosen the captive screws



Figur 21. Removing the battery and disconnecting the battery cable

Steg

1. Disconnect the battery cable from the battery-cable connector on the system board (if not disconnected earlier).
2. Loosen the four captive screws that secure the battery to the palm-rest assembly.
3. Lift the battery off the palm-rest assembly.
4. Flip the battery and peel the tape that adheres the battery cable to the battery.
5. Remove the battery cable from the routing guides on the battery.
6. Disconnect the battery cable from the connector on the battery.
7. Remove the battery cable away from the battery.

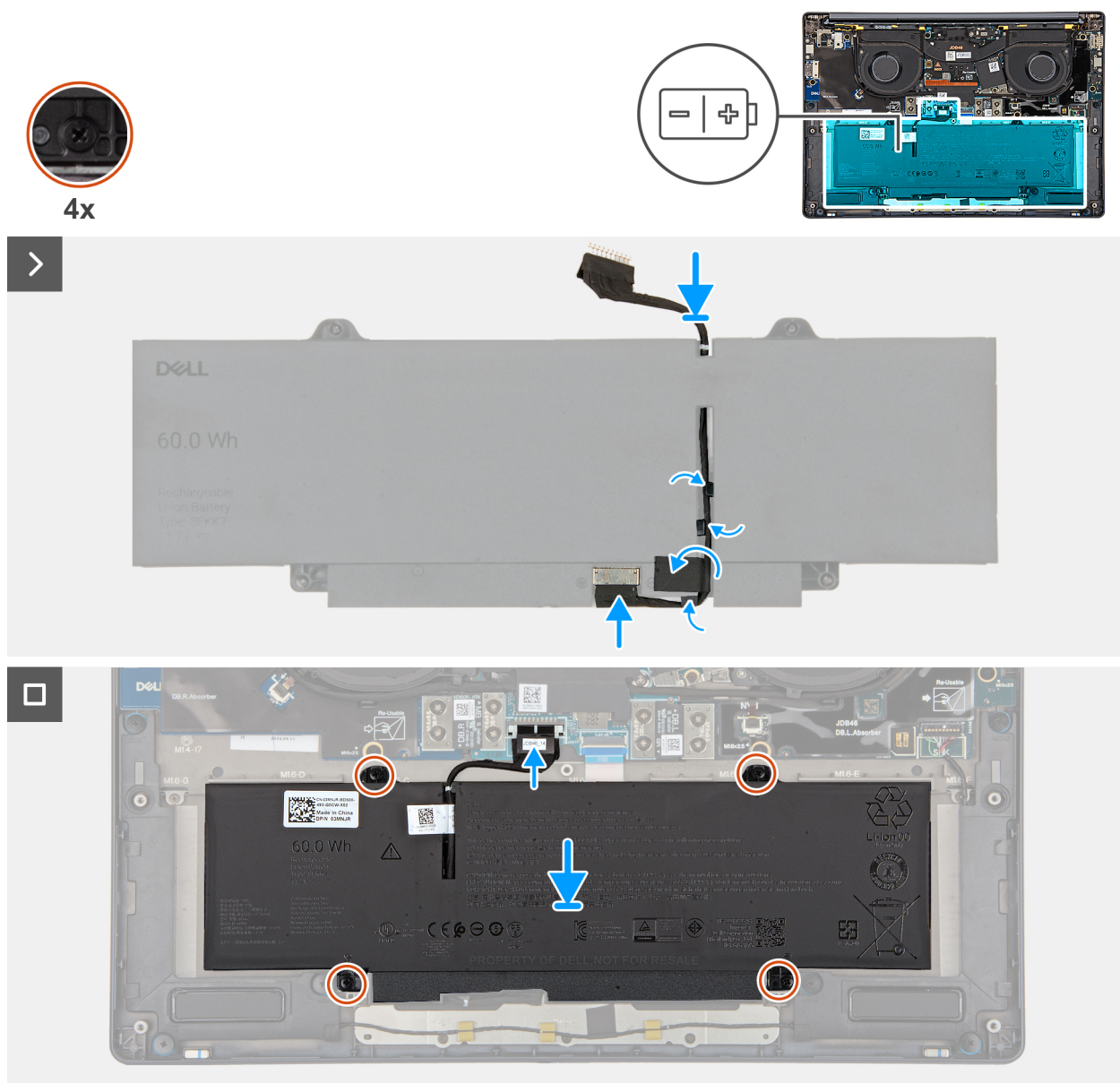
Installing the battery

Förutsättningar

If you are replacing a component, remove the existing component before performing the installation procedure.

Om denna uppgift

The following images indicate the location of the battery and provide a visual representation of the installation procedure.



Figur 22. Installing the battery

Steg

1. Align and route the battery cable through the routing guides on the battery.
2. Adhere the tape that secures the battery cable to the battery.
3. Connect the battery cable to the connector on the battery.
4. Flip the battery.
5. Using the alignment posts, place the battery on the palm-rest assembly.
6. Align the screw holes on the battery with the screw holes on the palm-rest assembly.
7. Tighten the four captive screws that secure the battery to the palm-rest assembly.
8. Connect the battery cable to the battery-cable connector on the system board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

SSD-minne (Solid State Drive)

Removing the M.2 2230 solid state drive

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).

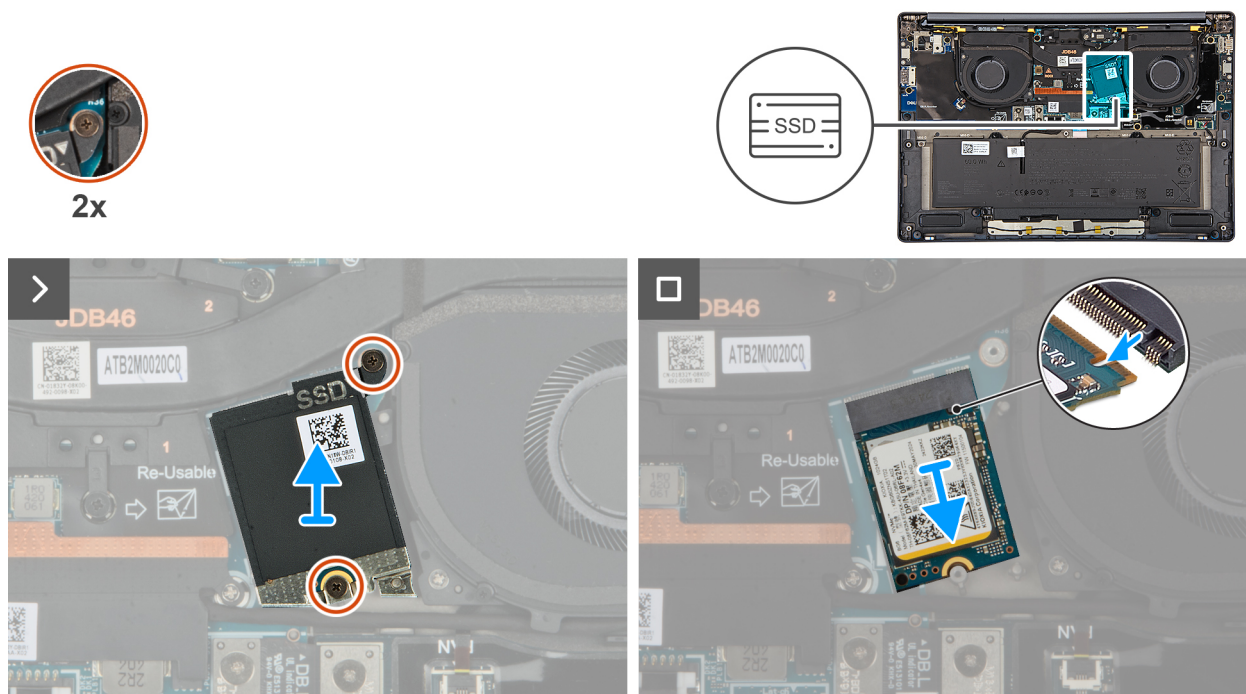
i **OBS:** Solid state drives are fragile. Exercise care when handling the solid state drive.

i **OBS:** To avoid data loss, do not remove the solid state drive while the computer is in sleep or on state.

2. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the M.2 2230 SSD and provides a visual representation of the removal procedure.



Figur 23. Removing the SSD

Steg

1. Loosen the two captive screws that secure the SSD shield cover from the system board.
2. Remove the SSD shield cover from the computer.
3. Slide and remove the SSD from the SSD slot on the system board.

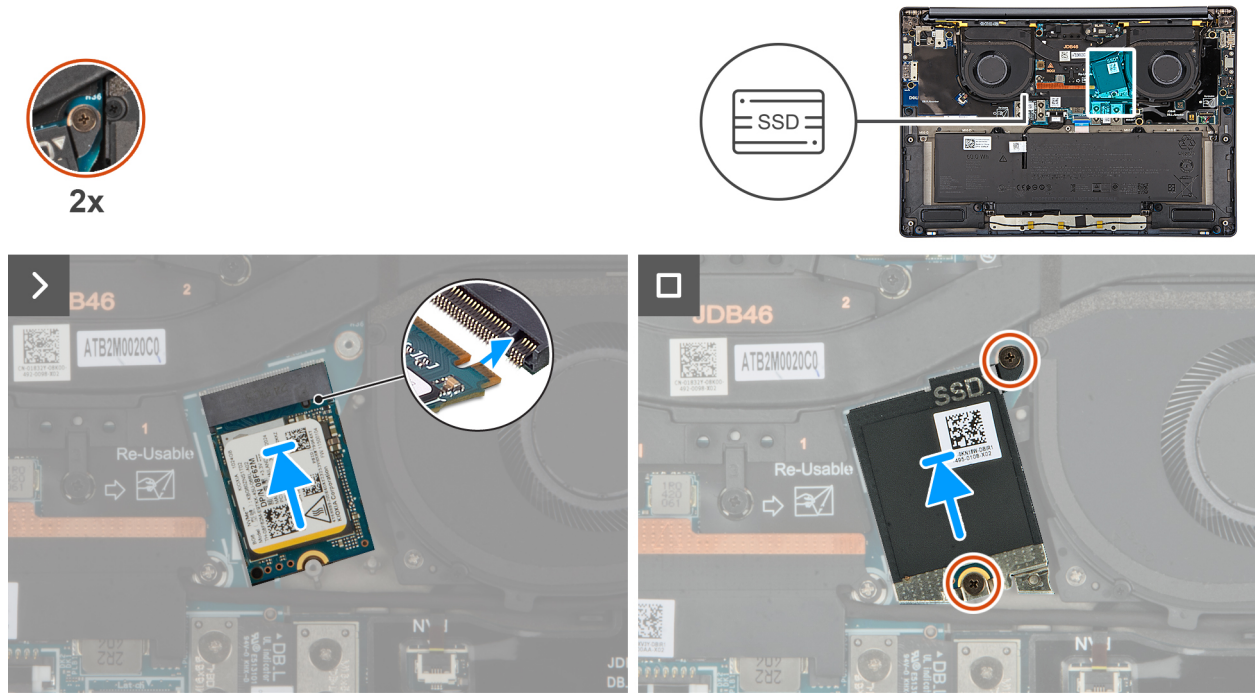
Installing the M.2 2230 solid state drive

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the M.2 2230 solid state drive (SSD) and provides a visual representation of the installation procedure.



Figur 24. Installing the SSD

Steg

1. Align the notch on the SSD with the tab on the SSD slot on the system board.
2. Replace the two captive screws to secure the SSD shield cover to the system board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).
3. Verify if the storage device is installed correctly:
 - a. Turn on or restart your system.
 - b. Press F2 when the Dell logo is displayed on the screen to enter the system setup (BIOS) program.

 **OBS:** A list of storage devices are displayed under the **System Information** in the **General** group.

- c. If you have replaced the primary storage device that had the operating system that is installed, search in the Knowledge Base Resource at [Dell Support Site](#).

WWAN-kort (trådlöst globalt nätverk)

Removing the WWAN card

Förutsättningar

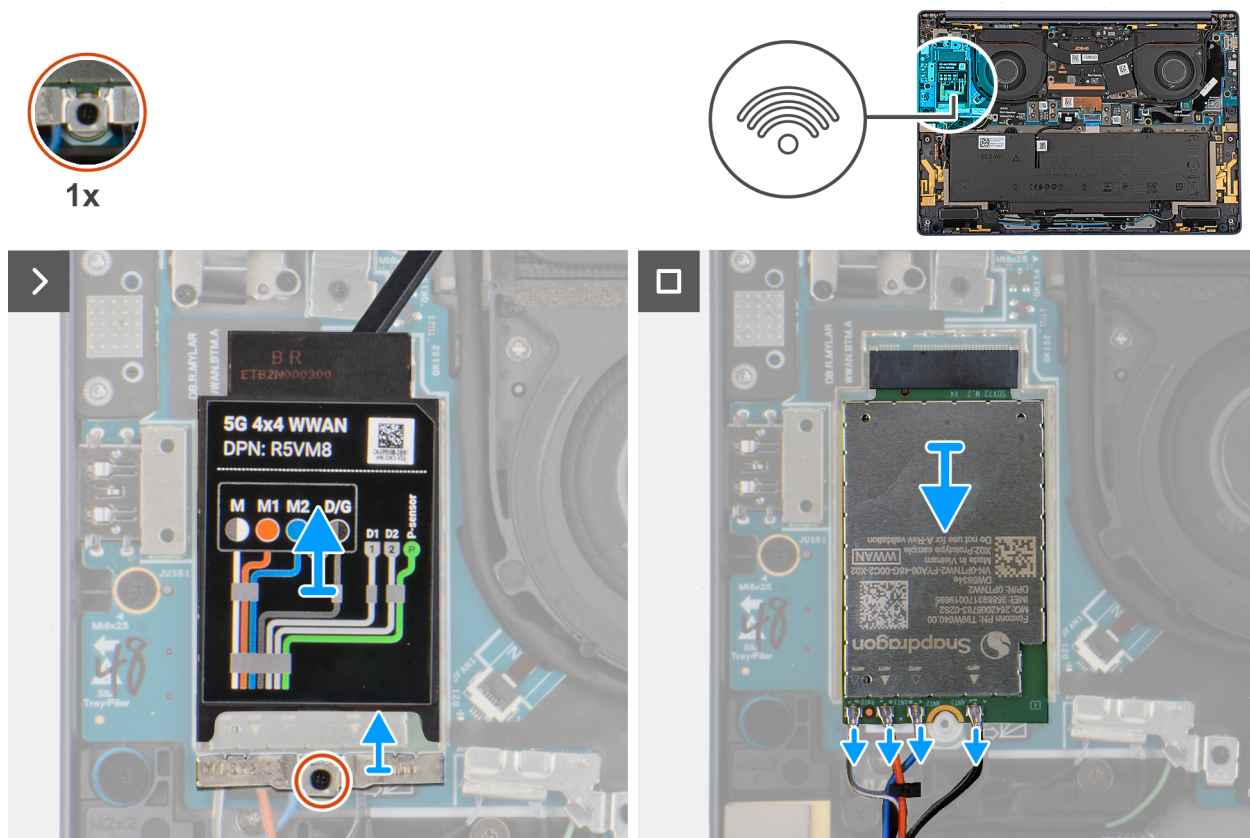
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).

Om denna uppgift

i **OBS:** This procedure applies only to computers shipped with a WWAN card installed.

i **OBS:** When reinstalling the WWAN card shield cover, ensure that the shielding cover is inserted into the clips on the right I/O-board.

The following images indicate the location of the WWAN card and provide a visual representation of the removal procedure.



Figur 25. Removing the WWAN card

Steg

1. Pry the WWAN shield cover from the top-left side of the shielding cover and remove it from the computer.
2. Lift the WWAN shield cover off the right I/O-board.
3. Loosen the single captive screw that secures the WWAN-card bracket to the right I/O-board.
4. Remove the WWAN-card bracket from the computer.
5. Disconnect the antenna cables from the connectors on the WWAN card.
6. Slide and remove the WWAN card from the WWAN card slot on the right I/O-board.

Installing the WWAN card

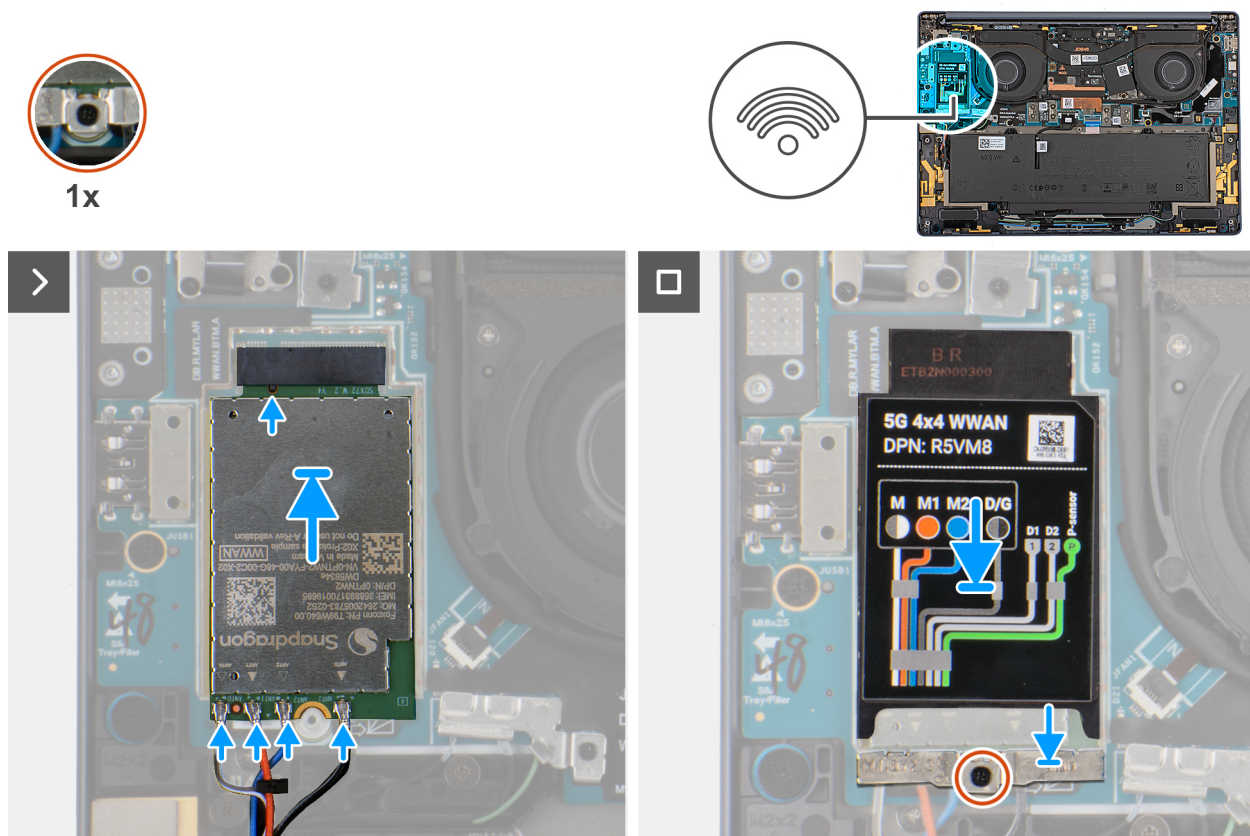
Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

i **OBS:** When reinstalling the WWAN card shielding cover, ensure that the shielding cover is inserted into the clips on the right I/O-.

Om denna uppgift

The following images indicate the location of the WWAN card and provide a visual representation of the installation procedure.



Figur 26. Installing the WWAN card

Steg

1. Align the notch on the WWAN card with the tab on the WWAN card slot on the system board.
2. Slide the WWAN card firmly into the WWAN card slot on the system board.
3. Connect the antenna cables to the connectors on the WWAN card.

The following table provides the antenna-cable color scheme for the WWAN card that is supported on your computer.

Tabell 31. Antenna-cable color scheme for WWAN cards

Connectors on the WWAN card	Antenna-cable color	Silkscreen marking	
D/G	Black with a thin white stripe	ANT3 D/G	△ (white triangle)
M2	Blue	ANT2 M2	△ (white triangle)
M1	Orange	ANT1 M1	△ (white triangle)
M	White with a thin gray stripe	ANT0 M	△ (white triangle)

4. Place the WWAN-card bracket on the WWAN card.
5. Align the screw on the WWAN-card bracket with the screw hole on the system board.
6. Replace the captive screw that secures the WWAN-card bracket to the system board.
7. Place the WWAN shielding cover over the WWAN card and secure it in place.

i OBS: For instructions on how to find your computer's International Mobile Station Equipment Identity (IMEI) number, search in the Knowledge Base Resource at [Dell Support Site](#).

Nästa Steg

1. Install the [base cover](#).

2. Install the [nano-SIM card](#).
3. Install the [nano-SIM card tray](#).
4. Follow the procedure in [After working inside your computer](#).

Fläkt

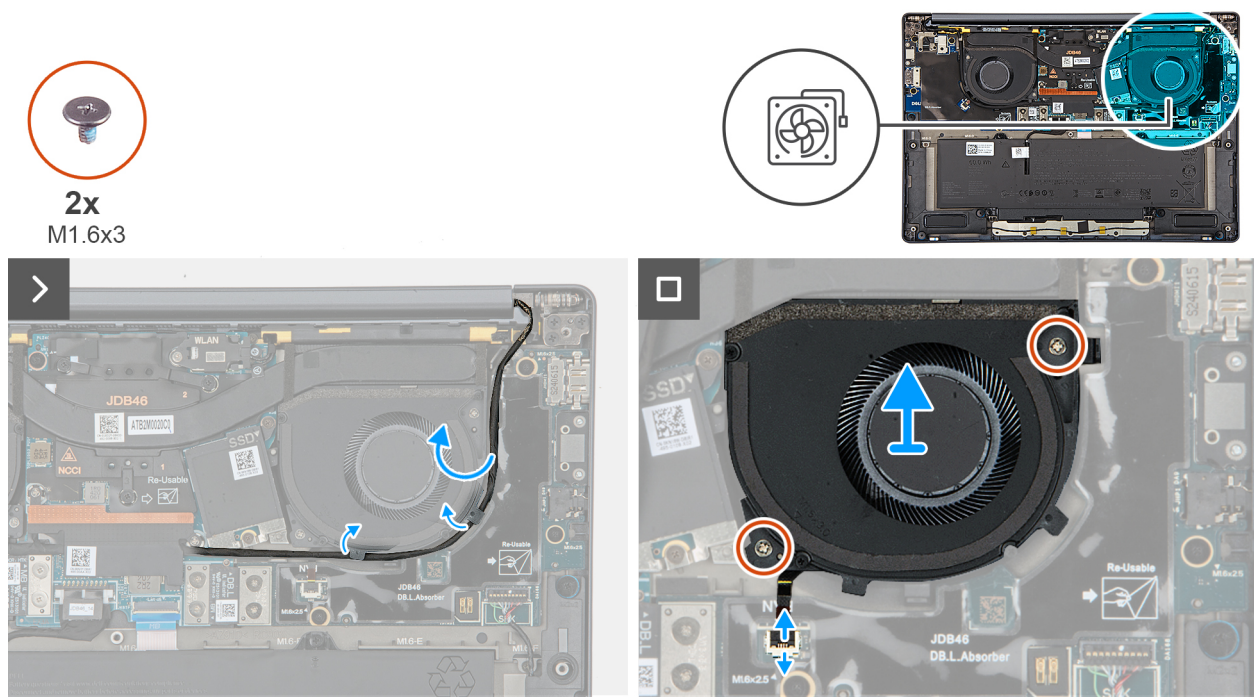
Removing the left fan

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the left fan and provides a visual representation of the removal procedure.



Figur 27. Removing the left fan

Steg

1. Unroute the camera cable from the routing channels along the sides of the left fan.
2. Disconnect the left-fan cable from the connector on the left I/O-board.
3. Remove the two screws (M1.6x3) that secure the left fan.
4. Remove the left fan from the palm-rest assembly.

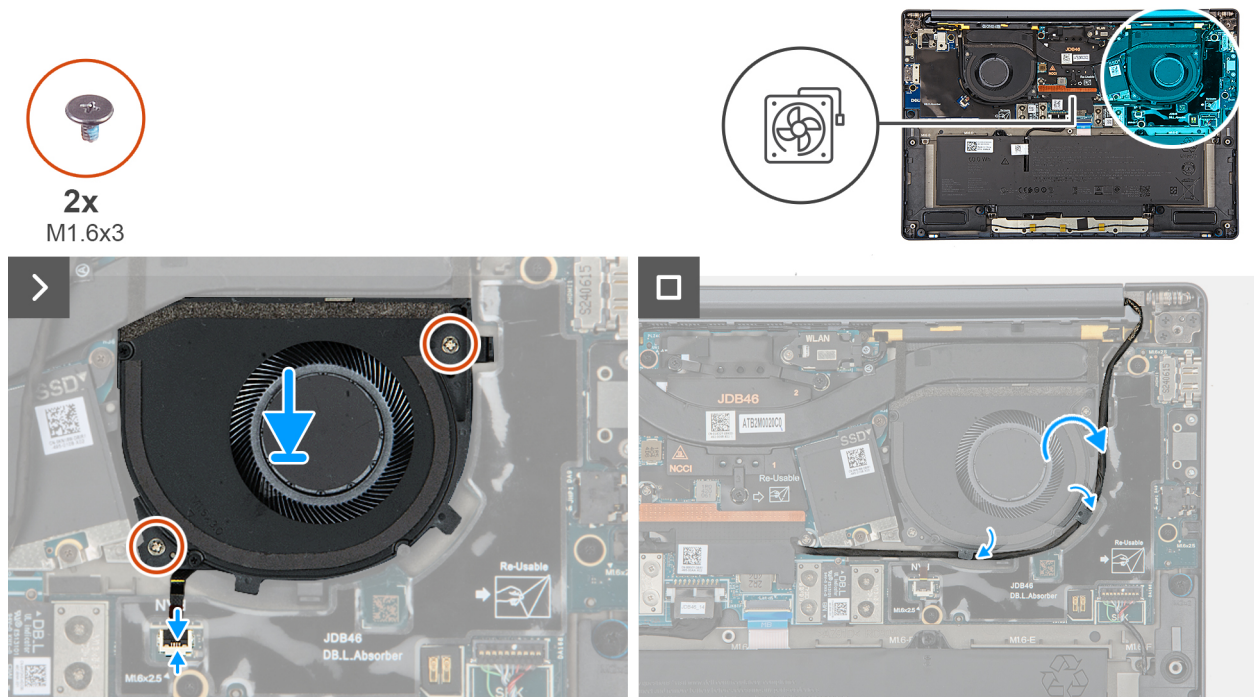
Installing the left fan

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the left fan and provides a visual representation of the installation procedure.



Figur 28. Installing the left fan

Steg

1. Place the left fan on the palm-rest assembly.
2. Align the screw holes on the left fan to the screw holes on the palm-rest assembly.
3. Replace the two screws (M1.6x3) that secure the left fan to the palm-rest assembly.
4. Connect the left fan cable to the connector on the left I/O-board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

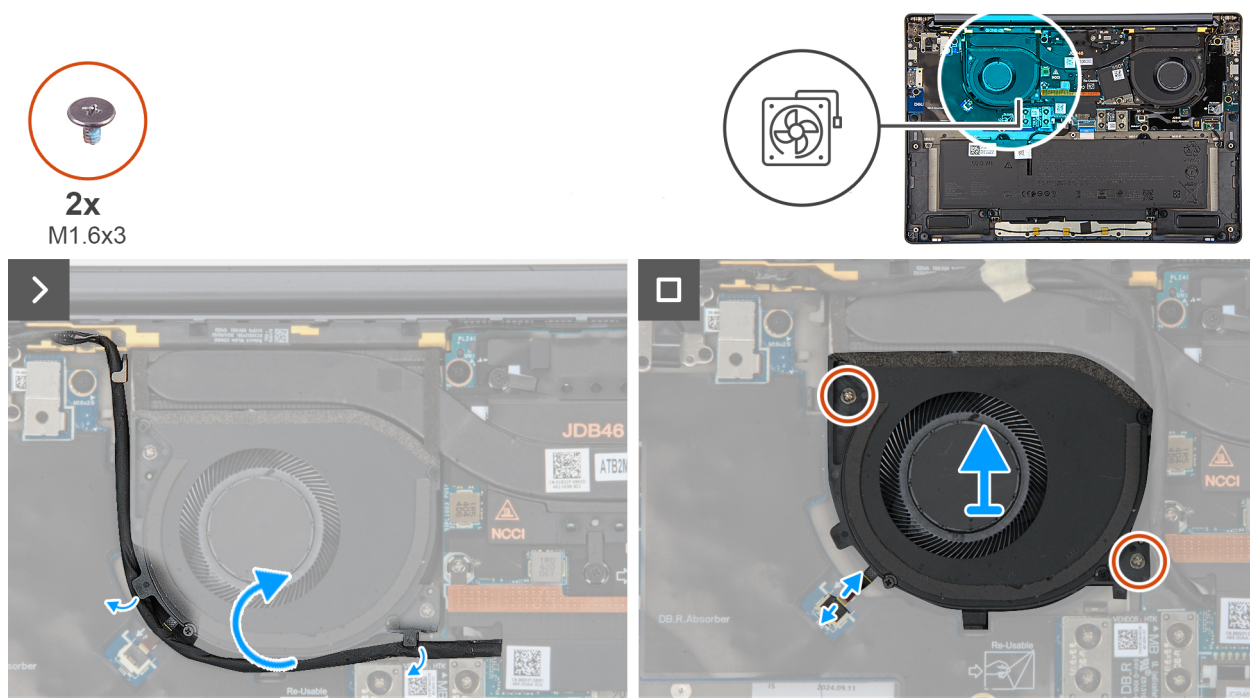
Removing the right fan

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the right fan and provides a visual representation of the removal procedure.



Figur 29. Removing the right fan

Steg

1. Unroute the camera cable from the routing channels along the sides of the right fan.
2. Disconnect the right-fan cable from the connector on the right I/O-board.
3. Remove the two screws (M1.6x3) that secure the right fan.
4. Remove the right fan from the palm-rest assembly.

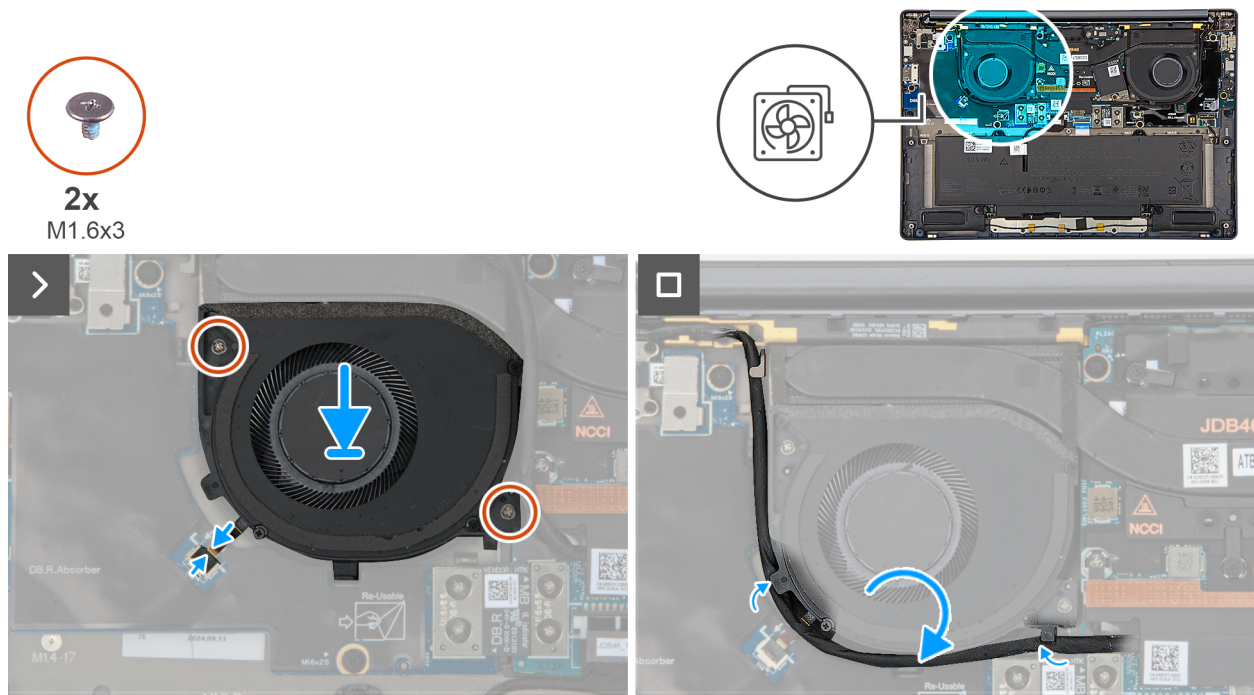
Installing the right fan

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the right fan and provides a visual representation of the installation procedure.



Figur 30. Installing the right fan

Steg

1. Place the right fan on the palm-rest assembly.
2. Align the screw holes on the right fan to the screw holes on the palm-rest assembly.
3. Replace the two screws (M1.6x3) that secure the right fan to the palm-rest assembly.
4. Connect the right-fan cable to the connector on the right I/O-board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Högtalare

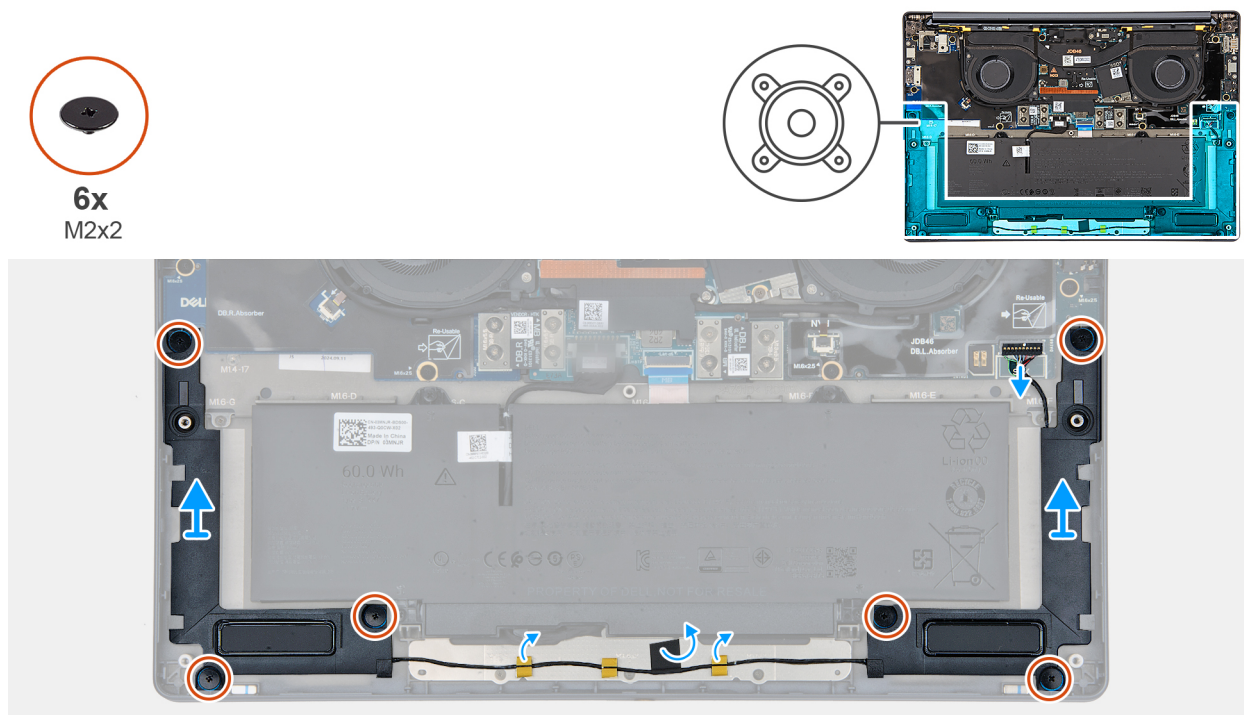
Removing the speakers without antenna (WLAN configuration)

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the speakers and provides a visual representation of the removal procedure.



Figur 31. Removing the speakers without antenna (WLAN configuration)

Steg

1. Disconnect the speaker cable from the connector on the left I/O-board.
2. Remove the six screws (M2x2) that secure the speakers in place.
3. Peel the tape that secures the speaker cable to the palm-rest and keyboard assembly.
4. Note the speaker cable routing, and unroute the speaker cable from the routing guides on the palm-rest and keyboard assembly.
5. Lift the speakers, along with the cable, off the palm-rest and keyboard assembly.

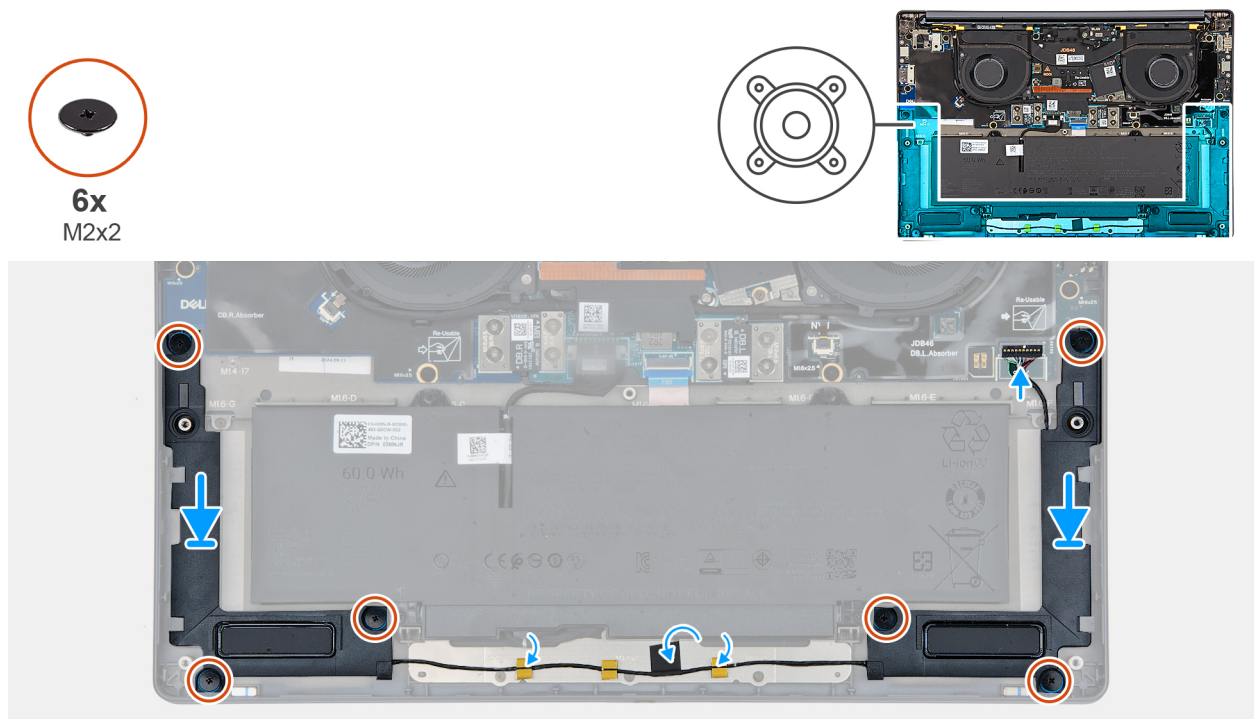
Installing the speakers without antenna (WLAN configuration)

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the speakers and provides a visual representation of the installation procedure.



Figur 32. Installing the speakers (without WWAN)

Steg

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
i **OBS:** To properly position the speakers, secure the rubber grommets into the hooks.
2. Route the speaker cable along the bottom side of the palm-rest and keyboard assembly. Then secure the speaker cable into the routing guides on the palm-rest and keyboard assembly.
3. Replace the six screws (M2x2) that secures the speakers in place.
4. Adhere the tape that secures the speaker cable to the palm-rest and keyboard assembly.
5. Connect the speaker cable to the connector on the left I/O-board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Ta bort och installera enheter som kan bytas ute i fält (FRU:er)

De utbytbara komponenterna i detta kapitel är enheter som kan bytas ute i fält (FRU:er)

 **CAUTION:** Informationen i detta avsnitt är endast avsedd för auktoriserade servicetekniker.

 **CAUTION:** För att undvika eventuella skador på komponenten eller förlust av data måste en auktoriserad servicetekniker byta ut FRU-delarna.

 **CAUTION:** Dell Technologies rekommenderar att denna uppsättning reparationer, vid behov, utförs av utbildade tekniska reparationsspecialister.

 **CAUTION:** Vi vill påminna dig om att din garanti inte täcker skador som kan uppstå under FRU-reparationer som inte har godkänts av Dell Technologies.

 **OBS:** Bilderna i det här dokumentet kan skilja från din dator beroende på konfigurationen du beställde.

Högtalare

Removing the speakers with antennas (WWAN configuration)

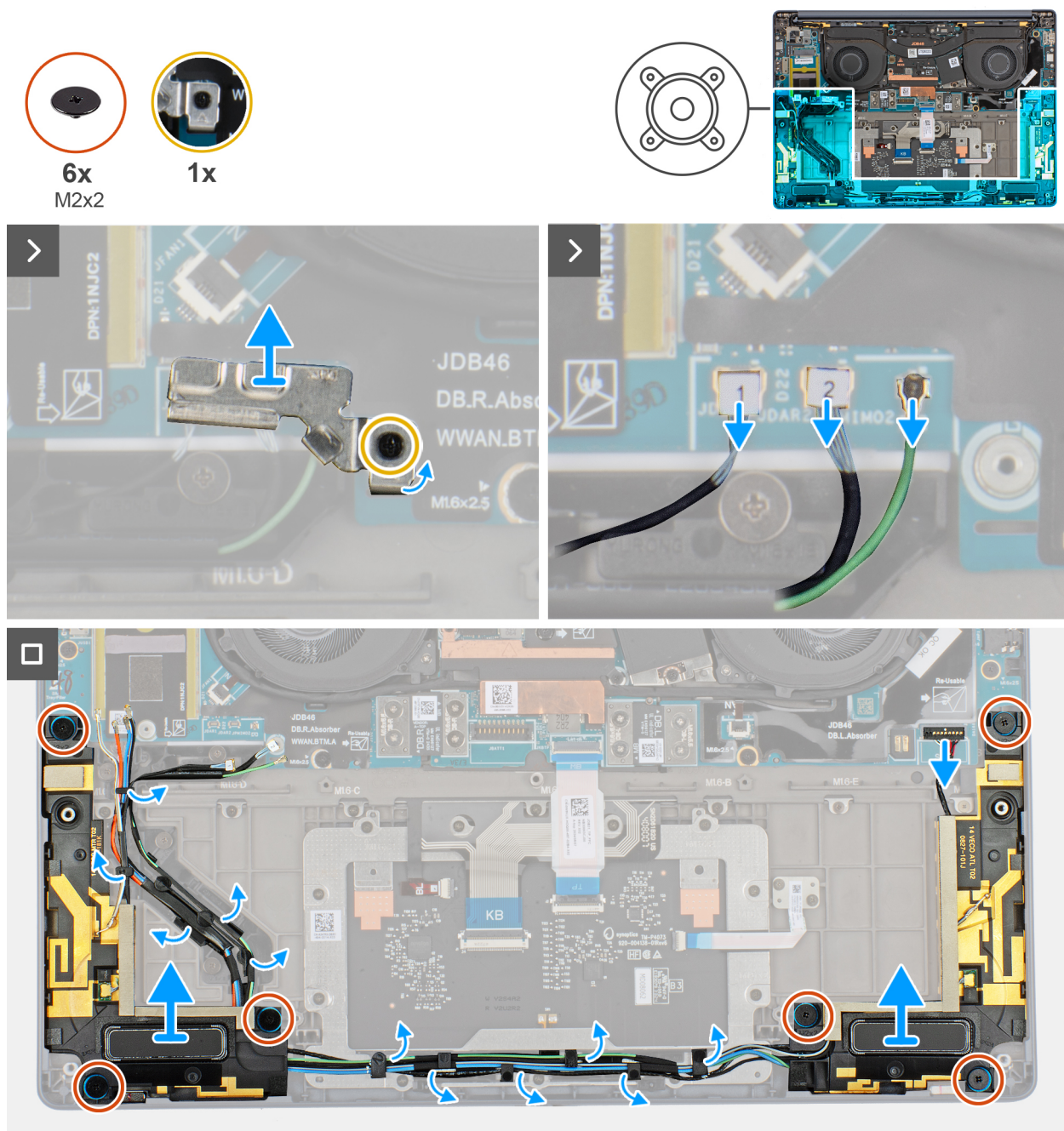
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#).

Om denna uppgift

The following image indicates the location of the speakers and provides a visual representation of the removal procedure.



Figur 33. Removing the speakers with antennas (WWAN configuration)

Steg

1. Loosen the captive screw that secures the antenna cables to the WWAN-card bracket.
2. Disconnect and unroute the antenna cables from the routing guide.
3. Disconnect the speaker cable from the connector on the left I/O-board.
4. Remove the six screws (M2x2) that secure the speakers in place.
5. Peel the tape that secures the speaker cable to the palm-rest and keyboard assembly.
6. Note the speaker cable routing, and unroute the speaker cable from the routing guides on the palm-rest and keyboard assembly.
7. Lift the speakers, along with the cable, off the palm-rest and keyboard assembly.

Installing the speakers with antennas (WWAN configuration)

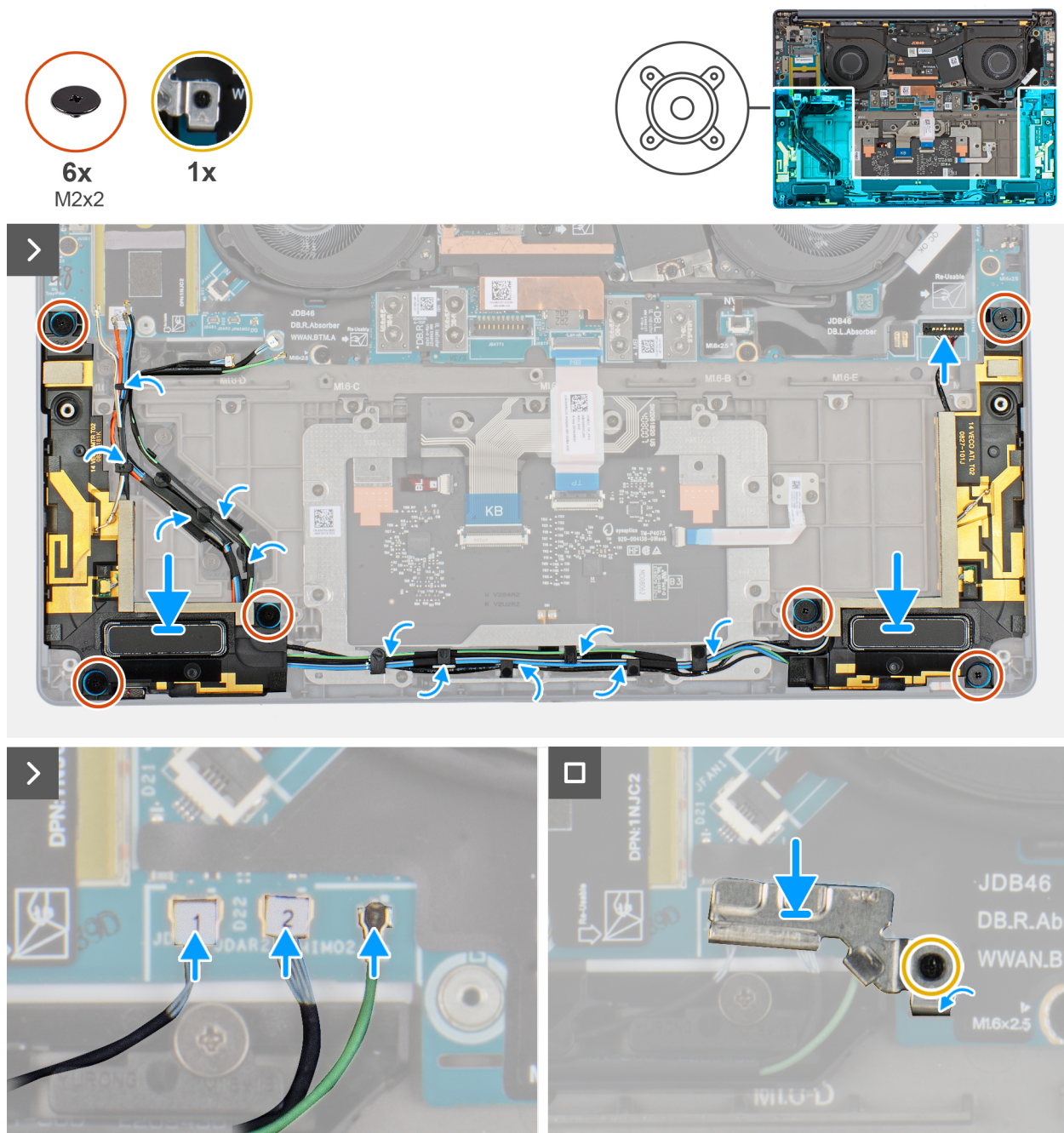
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the speakers and provides a visual representation of the installation procedure.



Figur 34. Installing the speakers with antennas (WWAN configuration)

Steg

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
 **OBS:** To properly position the speakers, secure the rubber grommets into the hooks.
2. Route the speaker cable along the bottom side of the palm-rest and keyboard assembly. Then secure the speaker cable into the routing guides on the palm-rest and keyboard assembly.
3. Replace the six screws (M2x2) that secures the speakers in place.
4. Adhere the tape that secures the speaker cable to the palm-rest and keyboard assembly.
5. Connect the speaker cable to the connector on the left I/O-board.
6. Connect the antenna cables and replace the WWAN-card bracket.
7. Tighten the captive screw that secures the antenna cables to the WWAN-card bracket.

Nästa Steg

1. Install the [WWAN card](#).
2. Install the [base cover](#).
3. Install the [nano-SIM card](#).
4. Install the [nano-SIM card tray](#).
5. Follow the procedure in [After working inside your computer](#).

Kylfläns

Removing the heat sink

 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

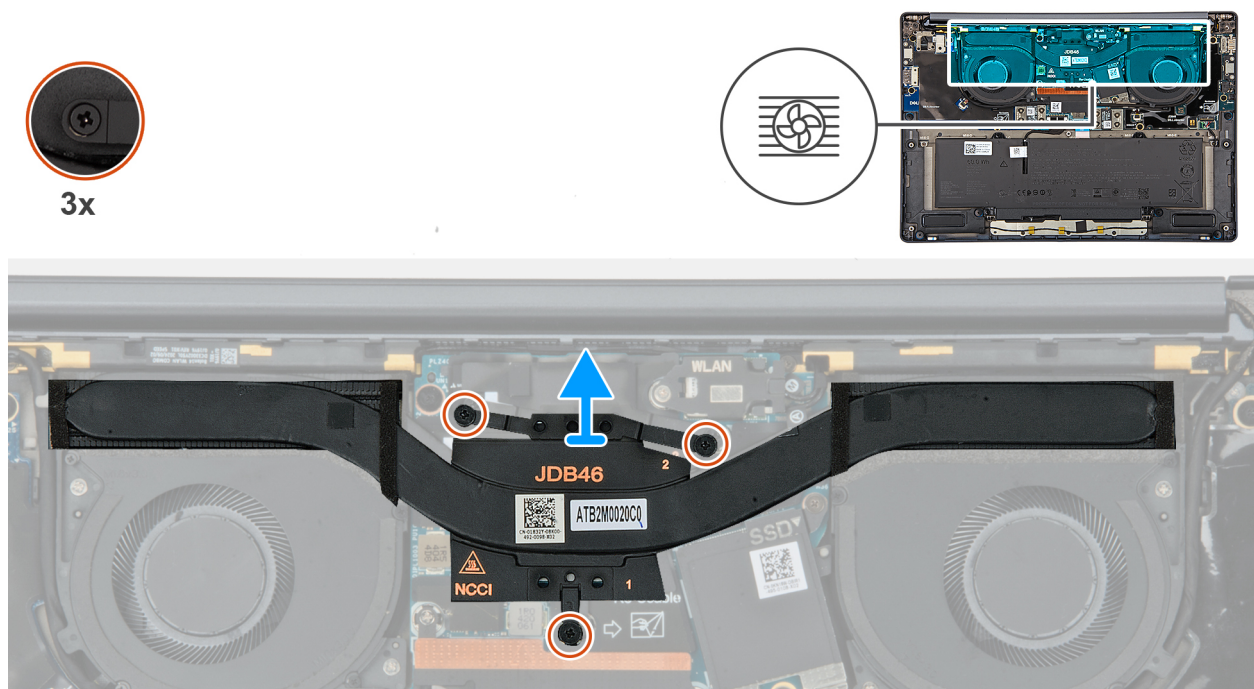
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

 **OBS:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

 **OBS:** For maximum cooling of the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

The following image indicates the location of the battery and provides a visual representation of the removal procedure.



Figur 35. Removing the heat sink

Steg

1. In reverse sequential order (3>2>1), loosen the three captive screws that secure the heat sink to the system board.
2. Lift the heat sink off the system board.

Installing the heat sink

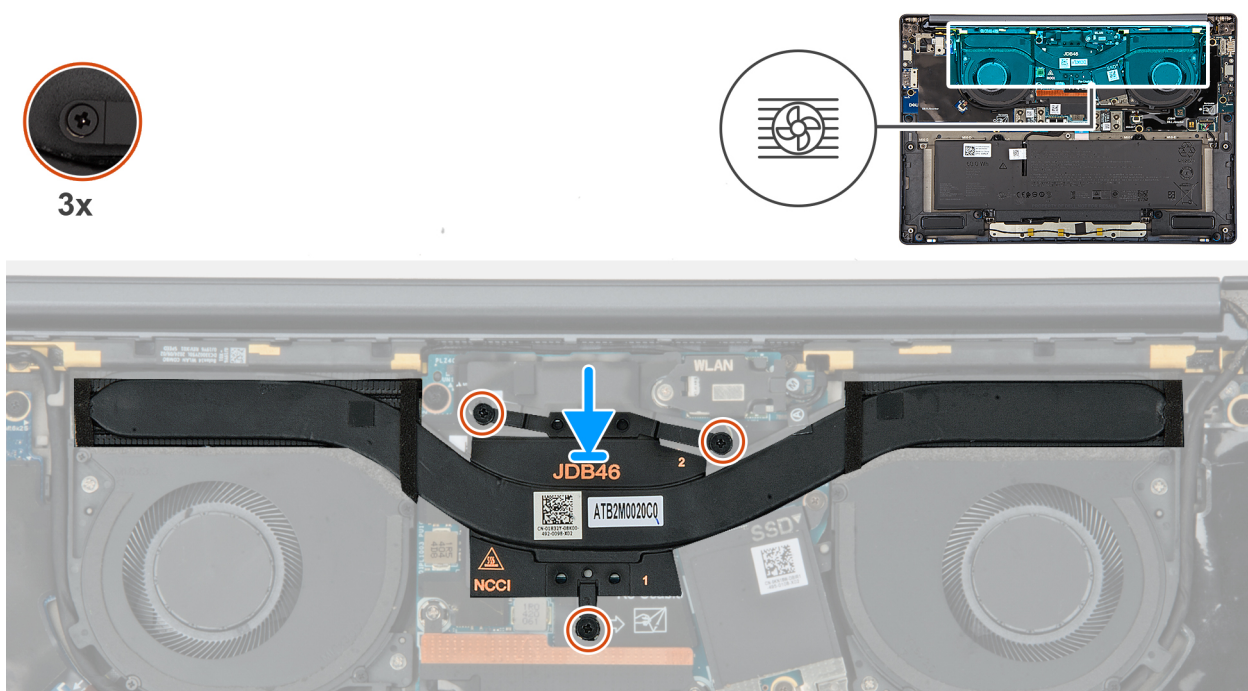
CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

If you are replacing a component, remove the existing component before performing the installation process.

Om denna uppgift

The following image indicates the location of the heat sink and provides a visual representation of the installation procedure.



Figur 36. Installing the heat sink

Steg

1. Place the heat sink on the system board.
i **OBS:** You must apply the XPG gel to the DRAMs of the CPU package.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1>2>3) tighten the three captive screws that secure the heat sink to the system board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

I/O board

Removing the left I/O-board

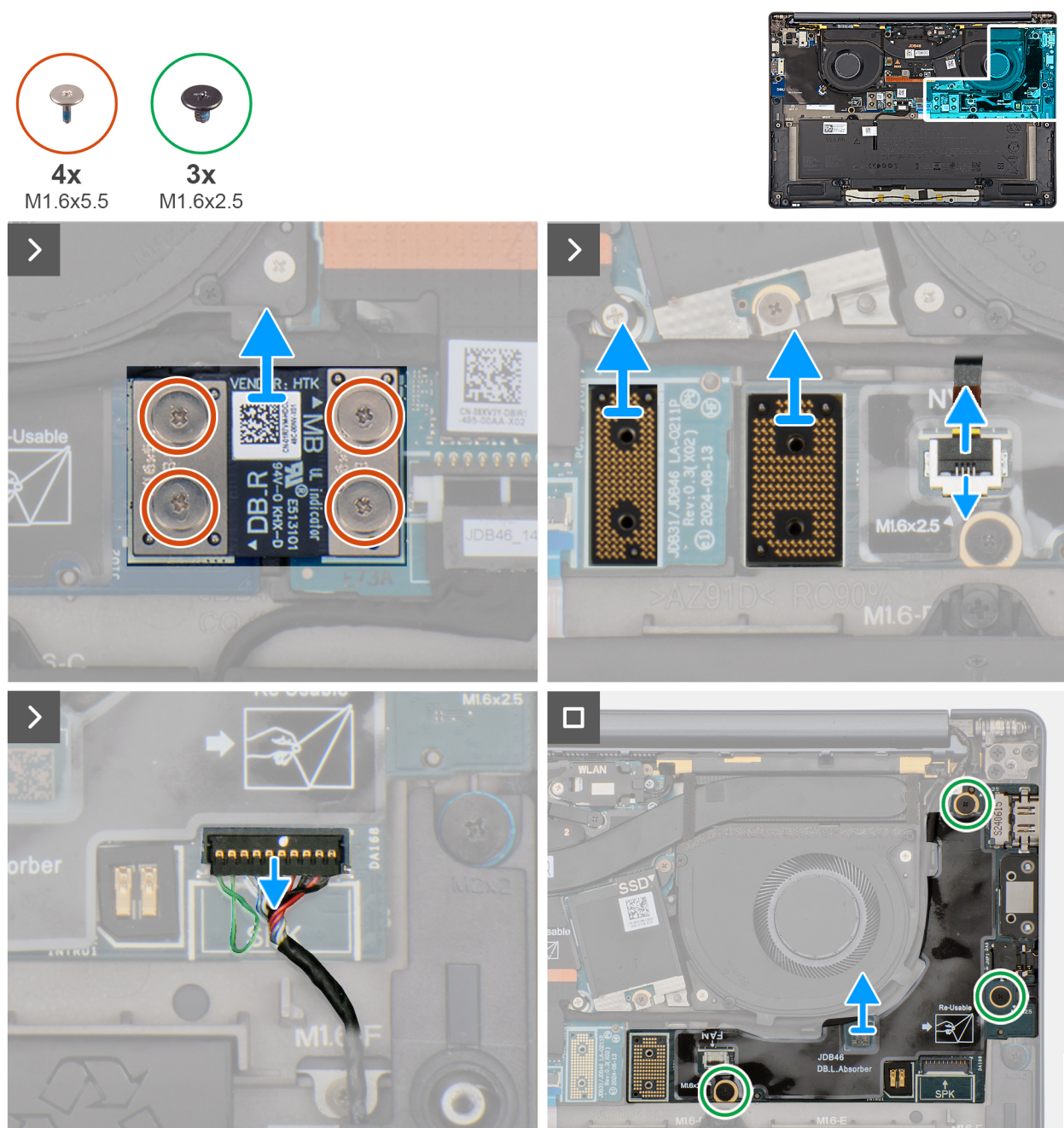
⚠ CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the left I/O-board and provides a visual representation of the removal procedure.



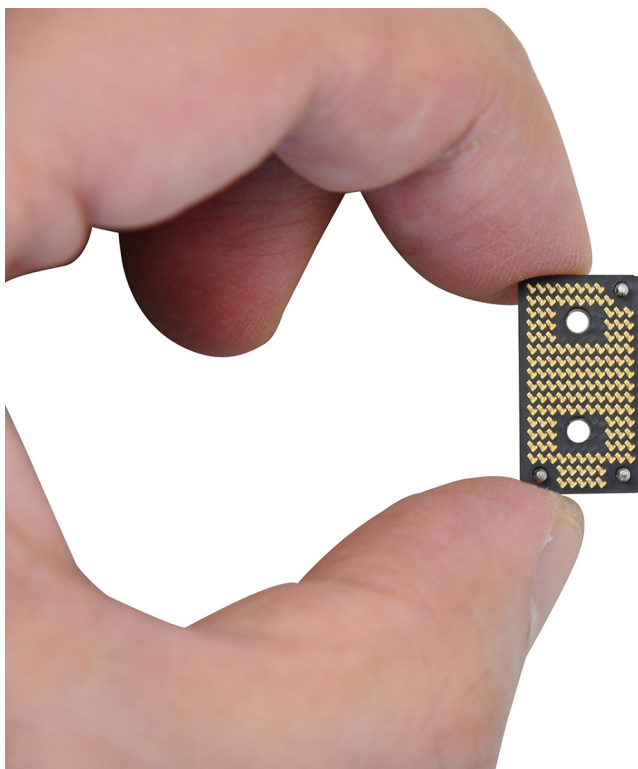
Figur 37. Removing the left I/O-board

Steg

1. Remove the four screws (M1.6x5.5) that secure the left I/O-board connector to the system board.
2. Remove the left I/O-board connector from the system board.
3. Remove the two interposer boards from the left-I/O board and system board.

CAUTION: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the system during subsequent removal procedures.

OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 38. Interposer board handling

4. Disconnect and remove the speaker cable and left-fan cable from the left I/O-board.
 5. Remove the three screws (M1.6x2.5) that secure the left I/O-board on the palm-rest and keyboard assembly.
 6. Lift to remove the left I/O-board off the palm-rest and keyboard assembly.
-  **OBS:** When replacing the left I/O-board, ensure that the left USB Type-C module is removed and transferred to the new replacement left I/O-board.

Installing the left I/O-board

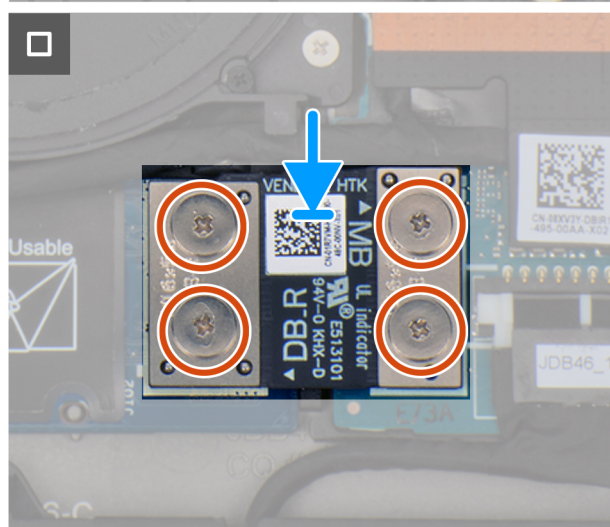
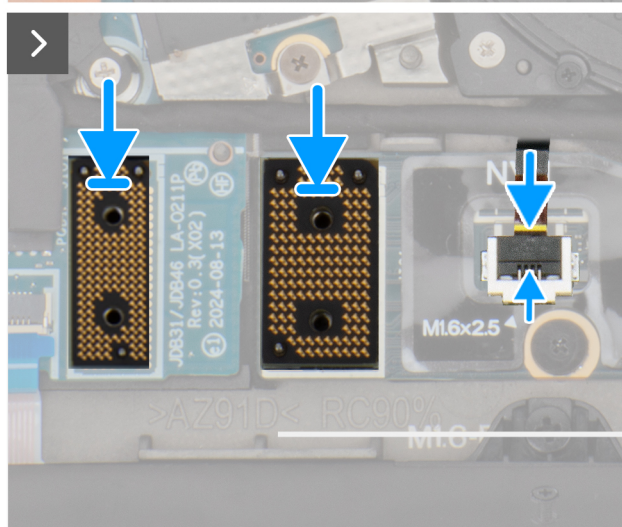
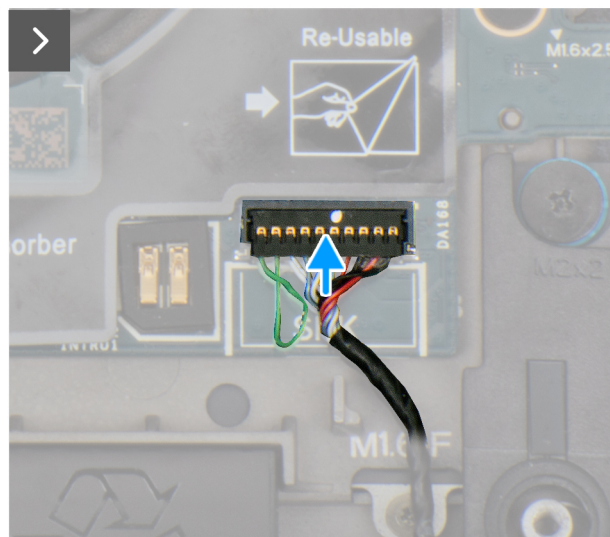
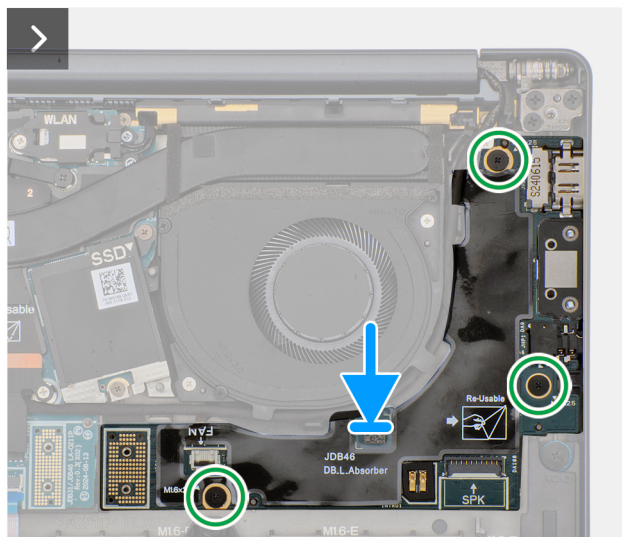
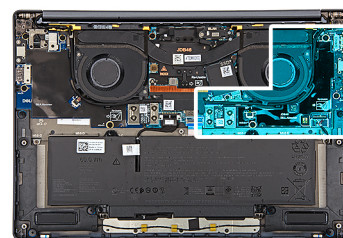
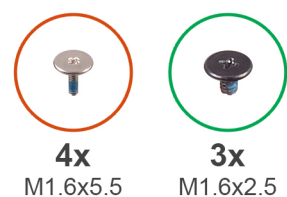
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

If you are replacing a component, remove the existing component before performing the installation process.

Om denna uppgift

The following image indicates the location of the left I/O-board and provides a visual representation of the installation procedure.

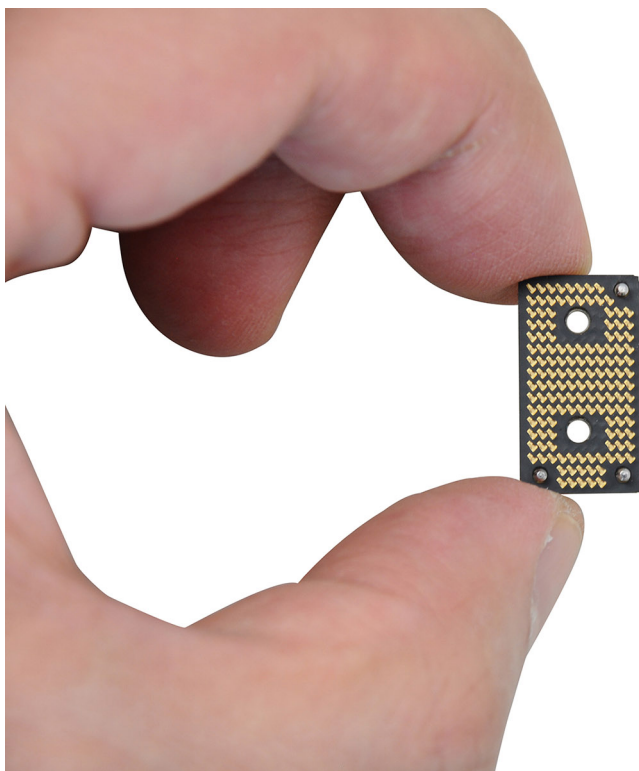


Figur 39. Installing the left I/O-board

Steg

1. Place the left I/O-board on the palm-rest and keyboard assembly.
2. Align the screw holes on the left I/O-board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the three screws (M1.6x2.5) that secure the left I/O-board on the palm-rest and keyboard assembly.
4. Connect the speaker cable and left-fan cable to the left I/O-board.
5. Replace the two interposer boards from the left-I/O board and system board.

i OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 40. Holding the interposer board

6. Replace the left I/O-board connector on the system board.
7. Replace the four screws (M1.6x5.5) that secure the left I/O-board connector on the system board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Removing the right I/O-board (without WWAN antennas)

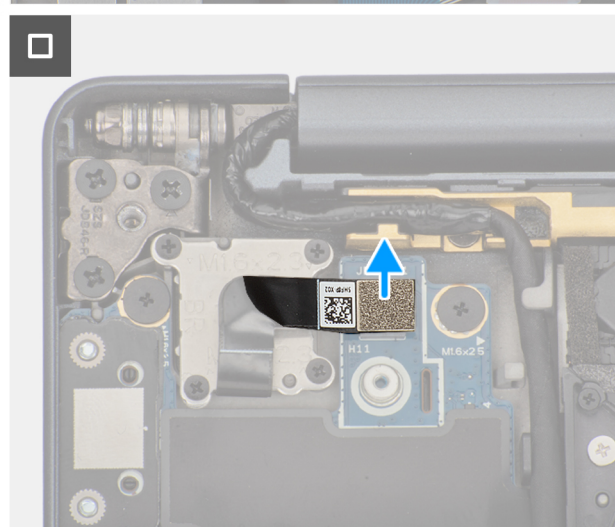
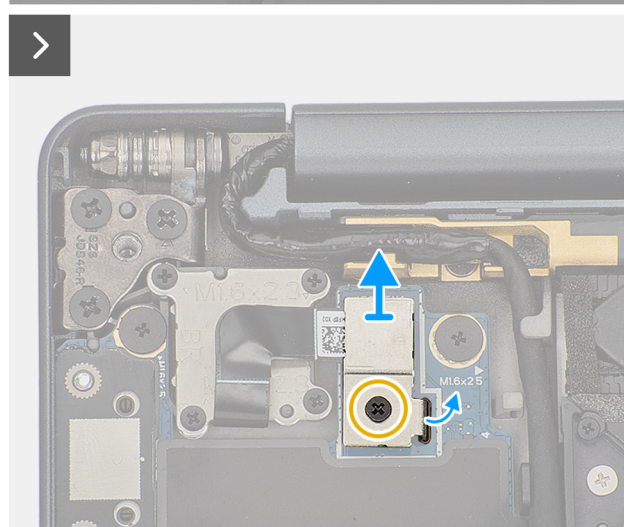
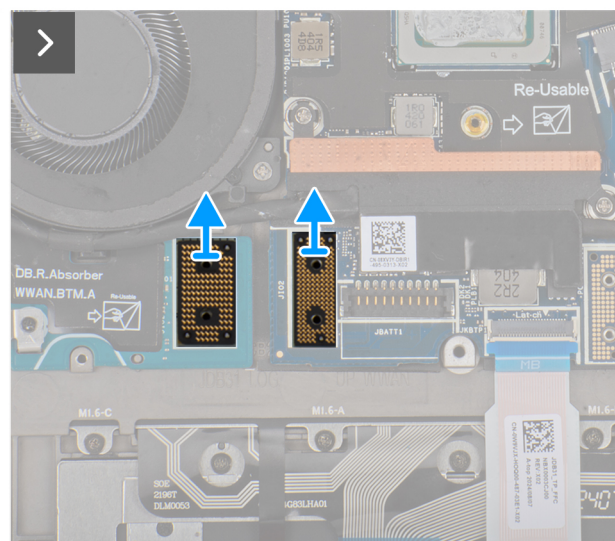
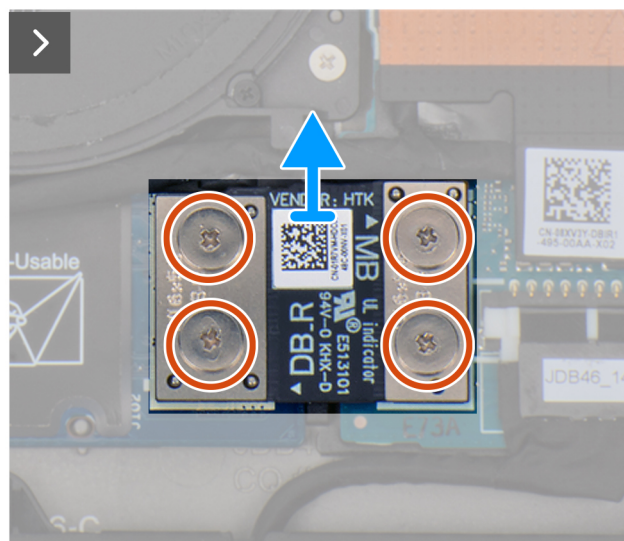
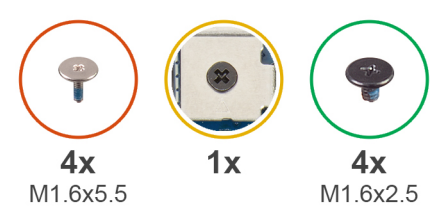
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

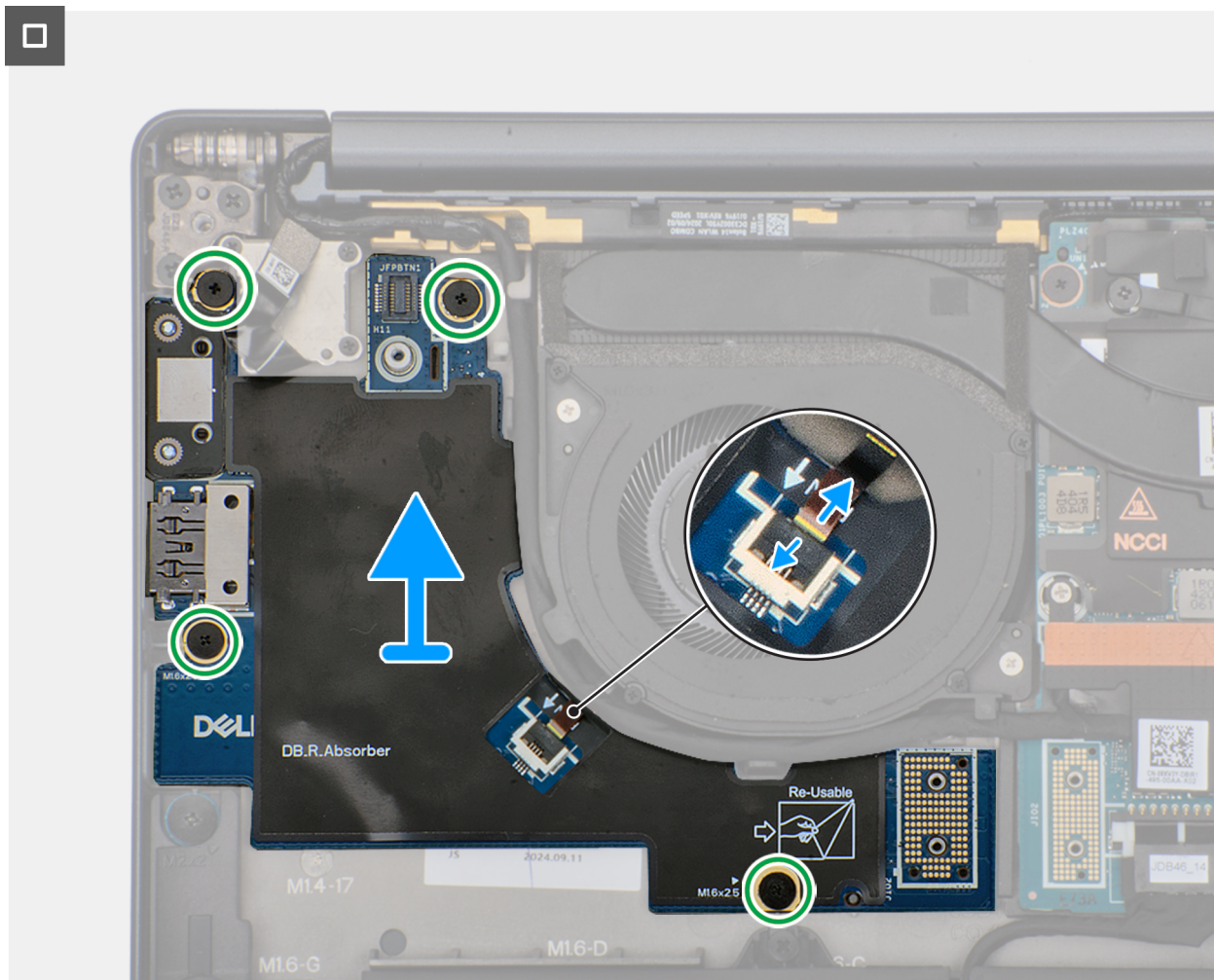
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).

Om denna uppgift

The following image indicates the location of the right I/O-board and provides a visual representation of the removal procedure.



Figur 41. Removing the screws



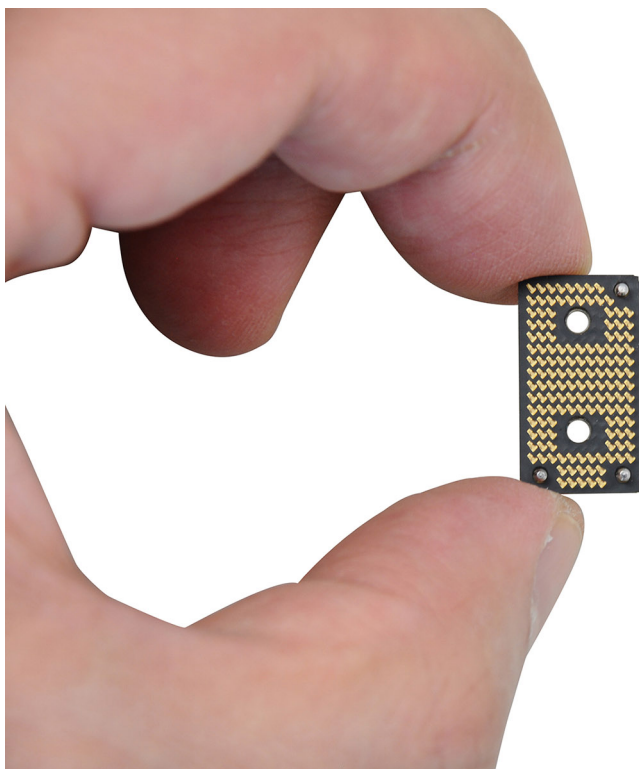
Figur 42. Removing the right I/O-board (without WWAN antennas)

Steg

1. Remove the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
2. Remove the two interposer boards from the left-I/O board and system board.

CAUTION: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the system during subsequent removal procedures.

OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 43. Holding the interposer board

3. Loosen the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
4. Remove the power-button connector bracket from the system board.
5. Remove the right I/O-board connector from the system board.
6. Disconnect the right-fan cable connector from the right I/O-board.
7. Remove the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
8. Lift to remove the right I/O-board off the palm-rest and keyboard assembly.

 **OBS:** When replacing the right I/O-board, ensure that the right USB Type-C module is removed and transferred to the new replacement right I/O-board.

Installing the right I/O-board (without WWAN antennas)

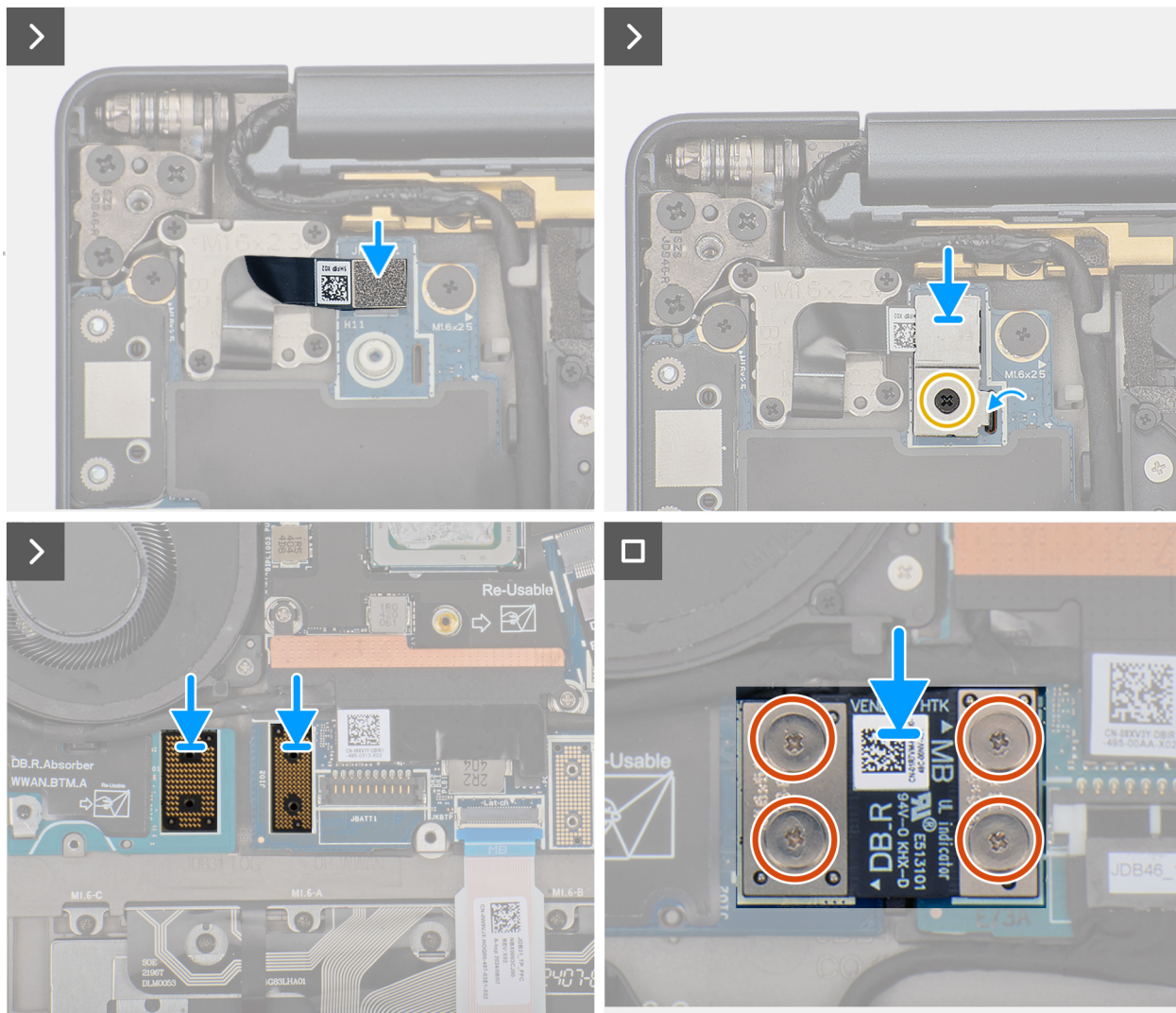
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

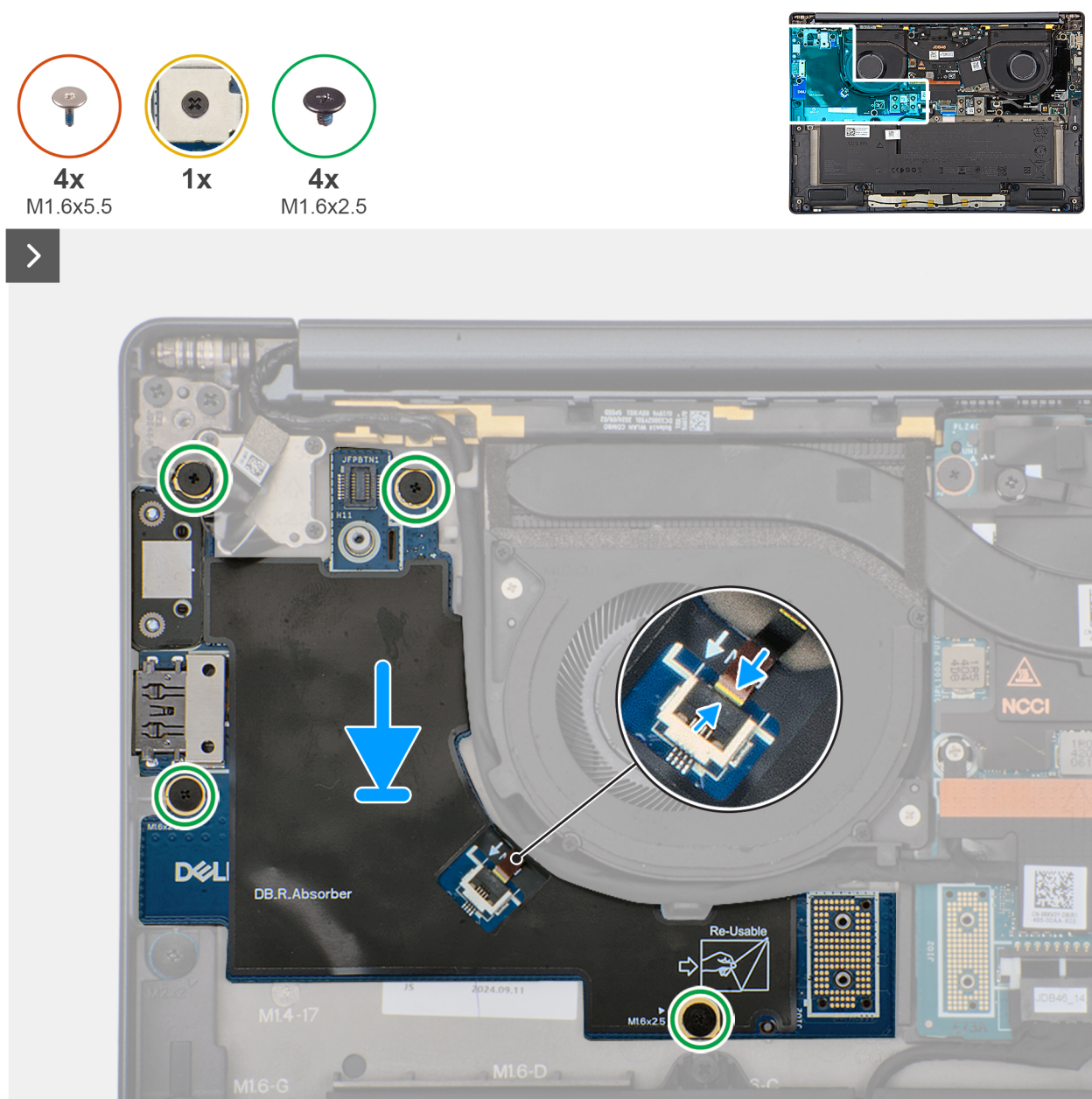
If you are replacing a component, remove the existing component before performing the installation process.

Om denna uppgift

The following image indicates the location of the right I/O-board and provides a visual representation of the installation procedure.



Figur 44. Installing the screws

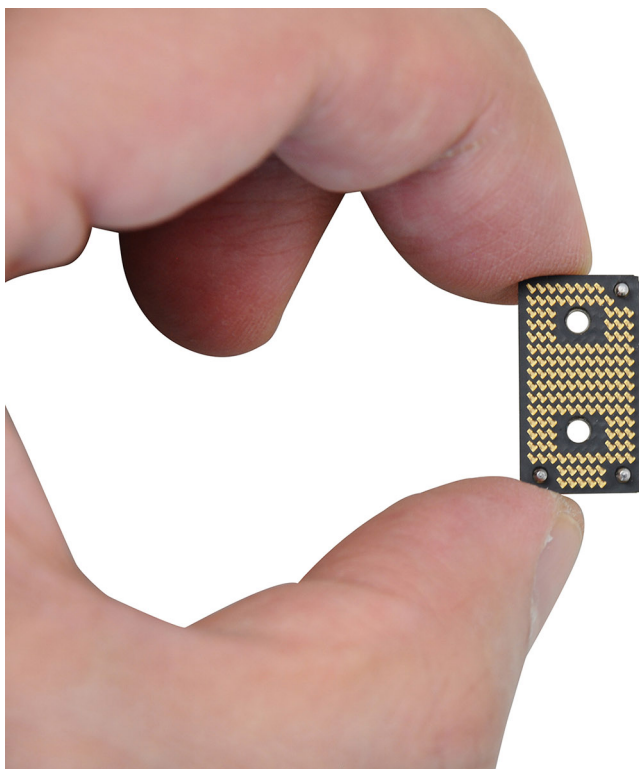


Figur 45. Installing the right I/O board (without WWAN antennas)

Steg

1. Place the right I/O-board on the palm-rest and keyboard assembly.
2. Align the screw holes on the right I/O-board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
4. Connect the right-fan cable connector to the right I/O-board.
5. Replace the right I/O-board connector to the system board.
6. Replace the power-button connector bracket on the system board.
7. Tighten the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
8. Replace the two interposer boards from the right-I/O board and system board.

i OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 46. Holding the interposer board

9. Replace the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.

Nästa Steg

1. Install the [base cover](#).
2. Install the [nano-SIM card](#).
3. Install the [nano-SIM card tray](#).
4. Follow the procedure in [After working inside your computer](#).

Removing the right I/O-board (with WWAN antennas)

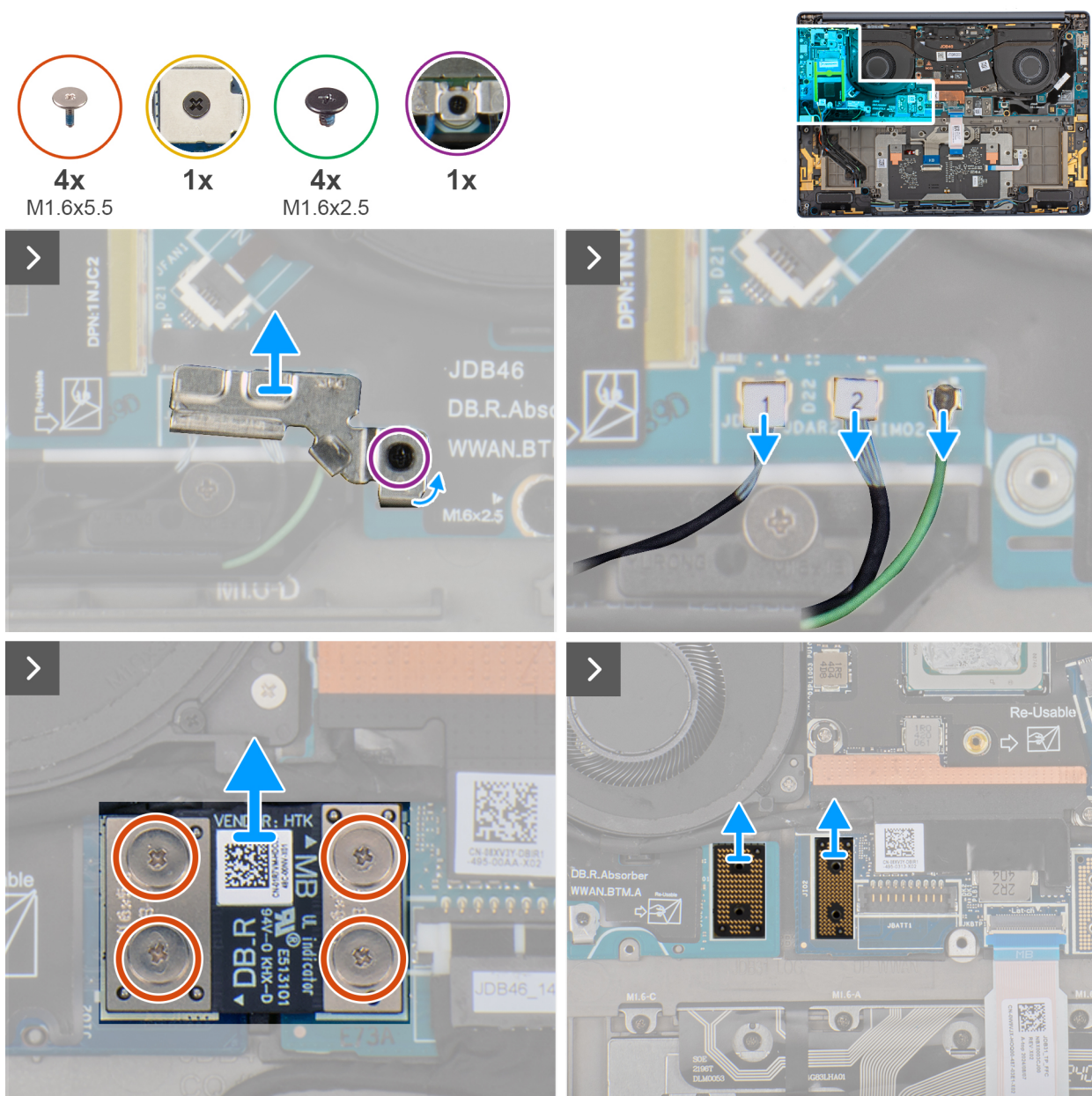
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

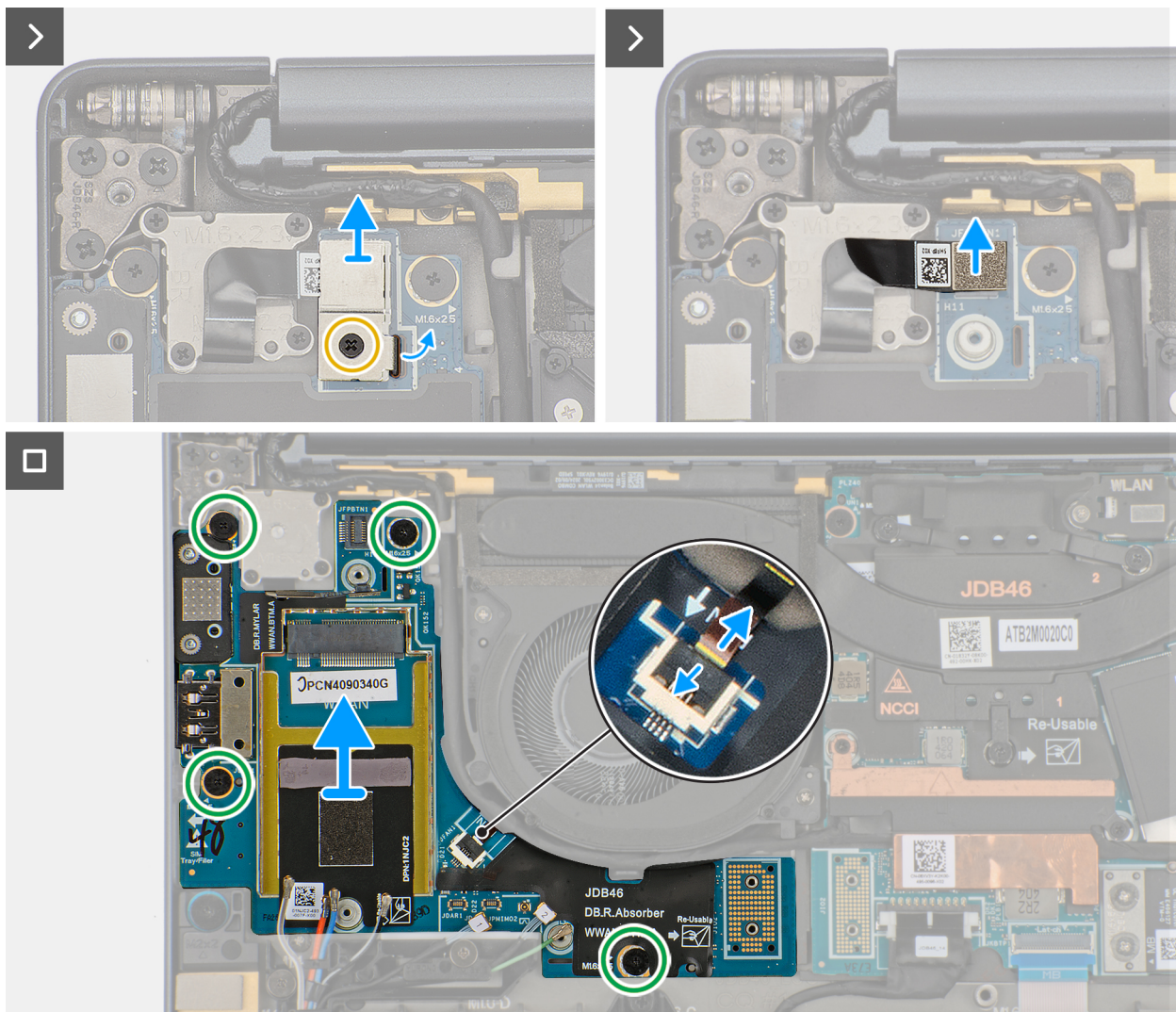
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#).

Om denna uppgift

The following image indicates the location of the right I/O-board and provides a visual representation of the removal procedure.



Figur 47. Removing the screws



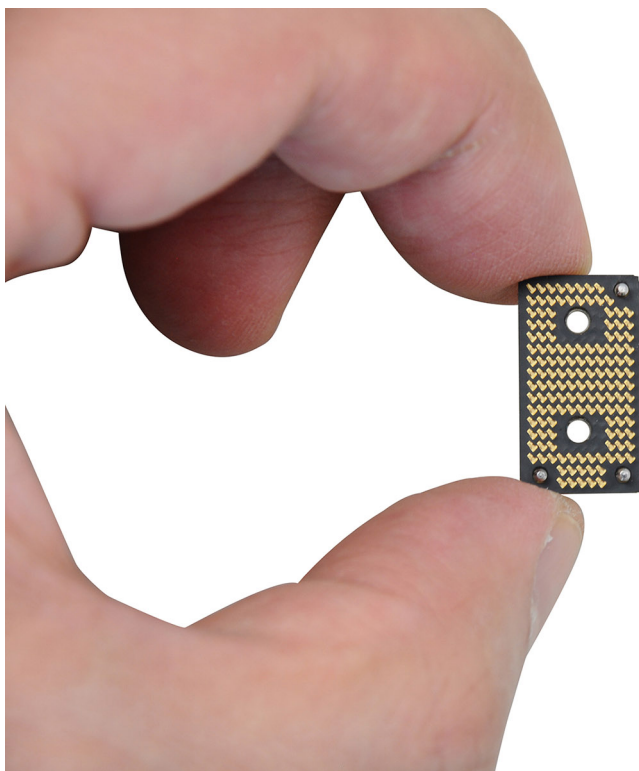
Figur 48. Removing the right I/O-board (with WWAN)

Steg

1. Loosen the single captive screw that secures the Darwin antenna-cable bracket.
2. Remove the Darwin antenna-cable bracket from the computer.
3. Disconnect the antenna cables from the right I/O-board.
4. Remove the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
5. Remove the two interposer boards from the left-I/O board and system board.

CAUTION: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the computer during subsequent removal procedures.

OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 49. Holding the interposer board

6. Loosen the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
7. Remove the power-button connector bracket from the system board.
8. Remove the right I/O-board connector from the system board.
9. Disconnect the right-fan cable connector from the right I/O-board.
10. Remove the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
11. Lift to remove the right I/O-board off the palm-rest and keyboard assembly.

 **OBS:** When replacing the right I/O-board, ensure that the right USB Type-C module is removed and transferred to the new replacement right I/O-board.

Installing the right I/O-board (with WWAN antennas)

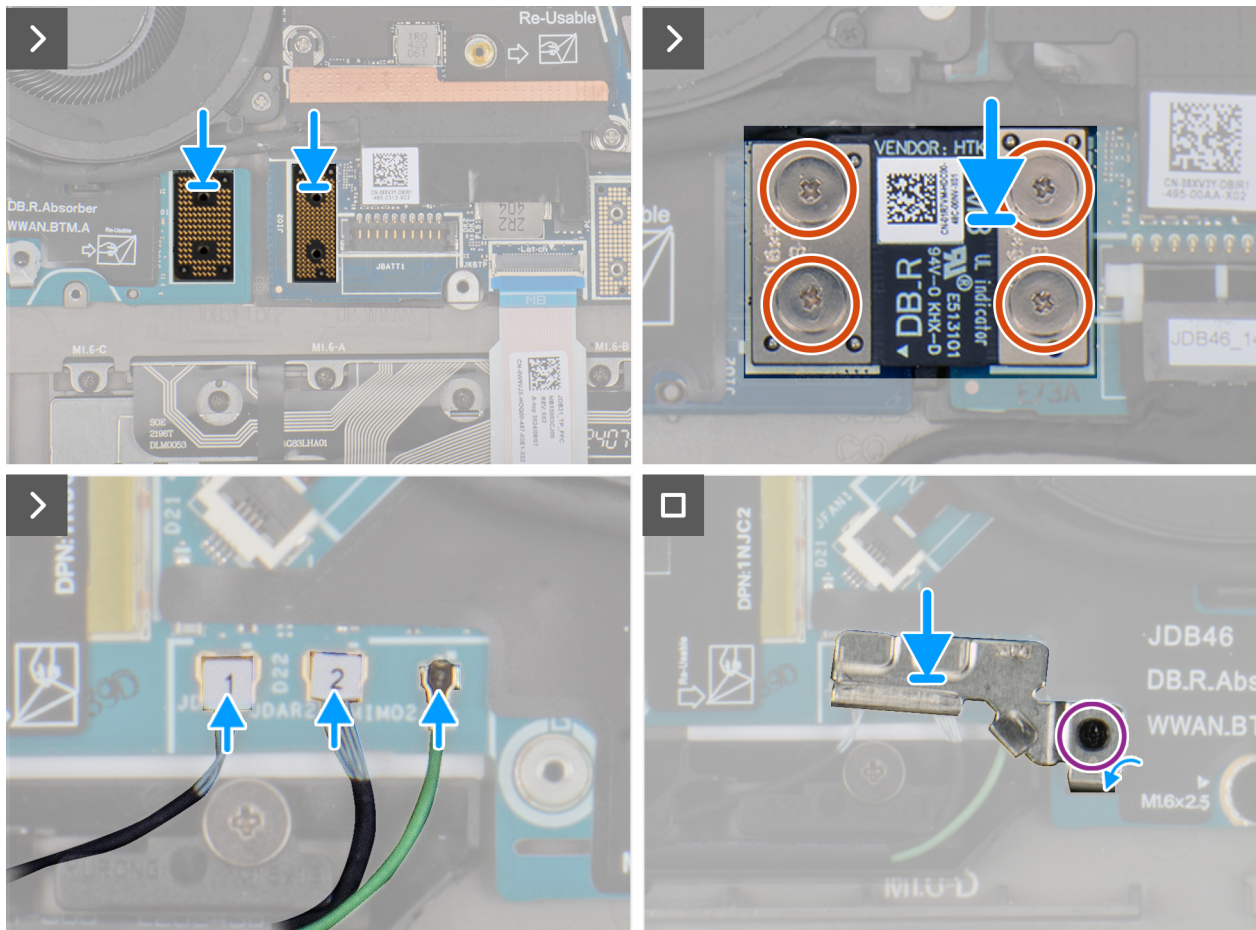
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

If you are replacing a component, remove the existing component before performing the installation process.

Om denna uppgift

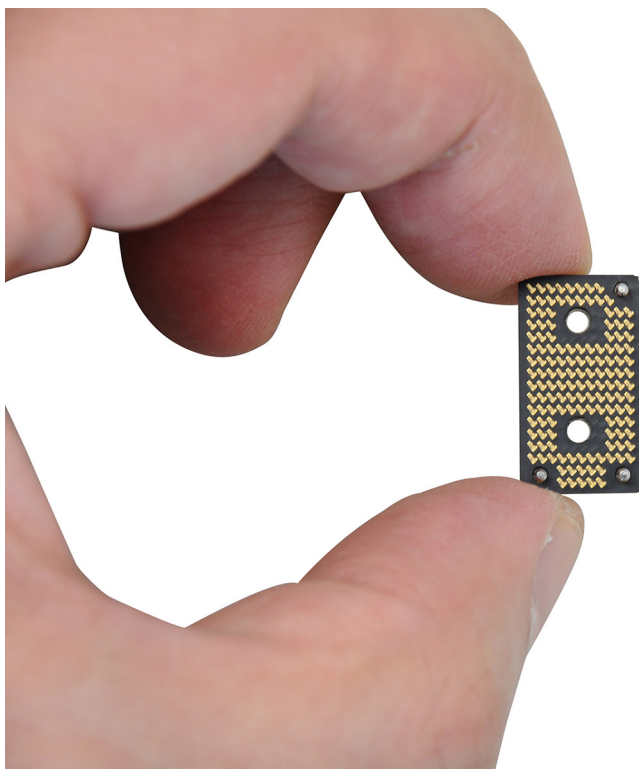
The following image indicates the location of the right I/O-board and provides a visual representation of the installation procedure.



Figur 51. Installing the right I/O-board (with WWAN)

Steg

1. Place the right I/O-board on the palm-rest and keyboard assembly.
 2. Align the screw holes on the right I/O-board with the screw holes on the palm-rest and keyboard assembly.
 3. Replace the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
 4. Connect the right-fan cable connector to the right I/O-board.
 5. Replace the right I/O-board connector to the system board.
 6. Replace the power-button connector bracket on the system board.
 7. Tighten the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
 8. Replace the two interposer boards from the right I/O-board and system board.
- i OBS:** The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 52. Holding the interposer board

9. Replace the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
10. Connect the antenna cables to the right I/O-board.
11. Replace the Darwin antenna-cable bracket on the computer.
12. Tighten the single captive screw that secures the Darwin antenna-cable bracket.

Nästa Steg

1. Install the [WWAN card](#).
2. Install the [base cover](#).
3. Install the [nano-SIM card](#).
4. Install the [nano-SIM card tray](#).
5. Follow the procedure in [After working inside your computer](#).

USB Type-C module

Removing the left USB Type-C module

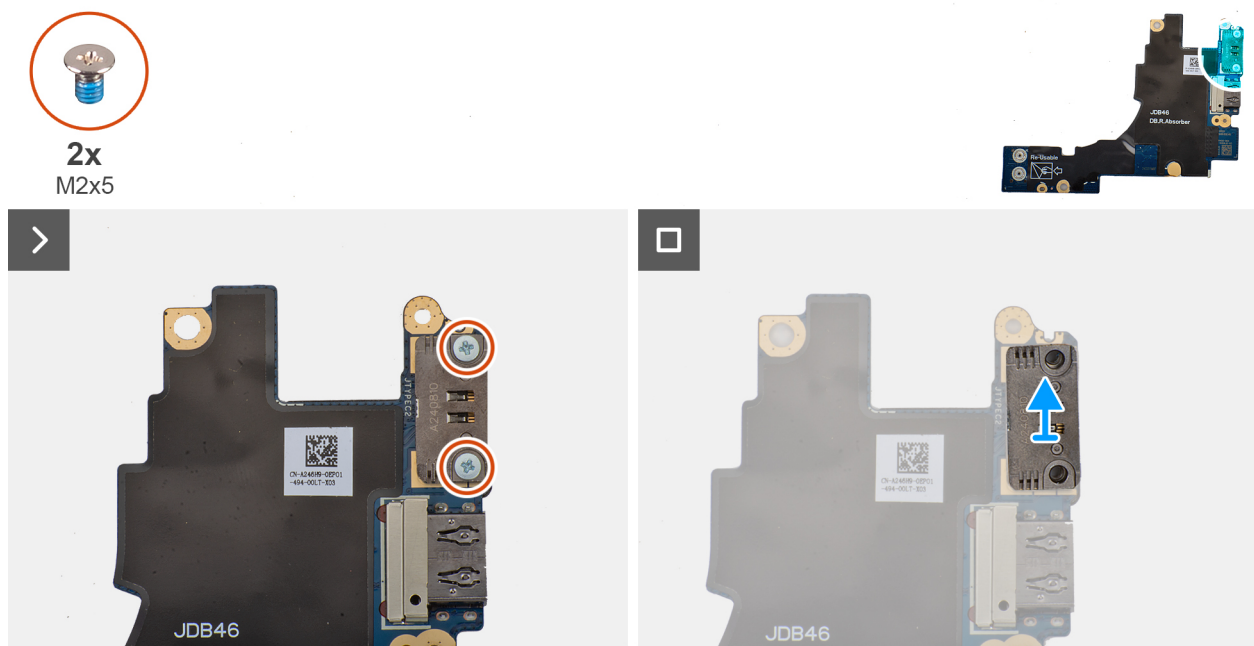
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [left I/O-board](#).

Om denna uppgift

The following image indicates the location of the left USB Type-C module and provides a visual representation of the removal procedure.



Figur 53. Removing the left USB Type-C module

Steg

1. Remove the two screws (M2x5) that secure the left USB Type-C module to the left I/O-board.
2. Lift the left USB Type-C module off the left I/O-board.

Installing the left USB Type-C module

CAUTION: The information in this section is intended for authorized service technicians only.

Om denna uppgift

The following image indicates the location of the left Type-C USB module and provides a visual representation of the installation procedure.



Figur 54. Installing the left USB Type-C module

Steg

1. Place the left USB Type-C module on the left I/O-board.
2. Align the screw holes on the left USB Type-C module with the screw holes on the left I/O-board.
3. Replace the two screws (M2x5) that secure the left USB Type-C module to the left I/O-board.

Nästa Steg

1. Install the [left I/O-board](#).
2. Install the [base cover](#).
3. Follow the procedure in [After working inside your computer](#).

Removing the right USB Type-C module

 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
7. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).

Om denna uppgift

The following image indicates the location of the right USB Type-C module and provides a visual representation of the removal procedure.



Figur 55. Removing the right USB Type-C module

Steg

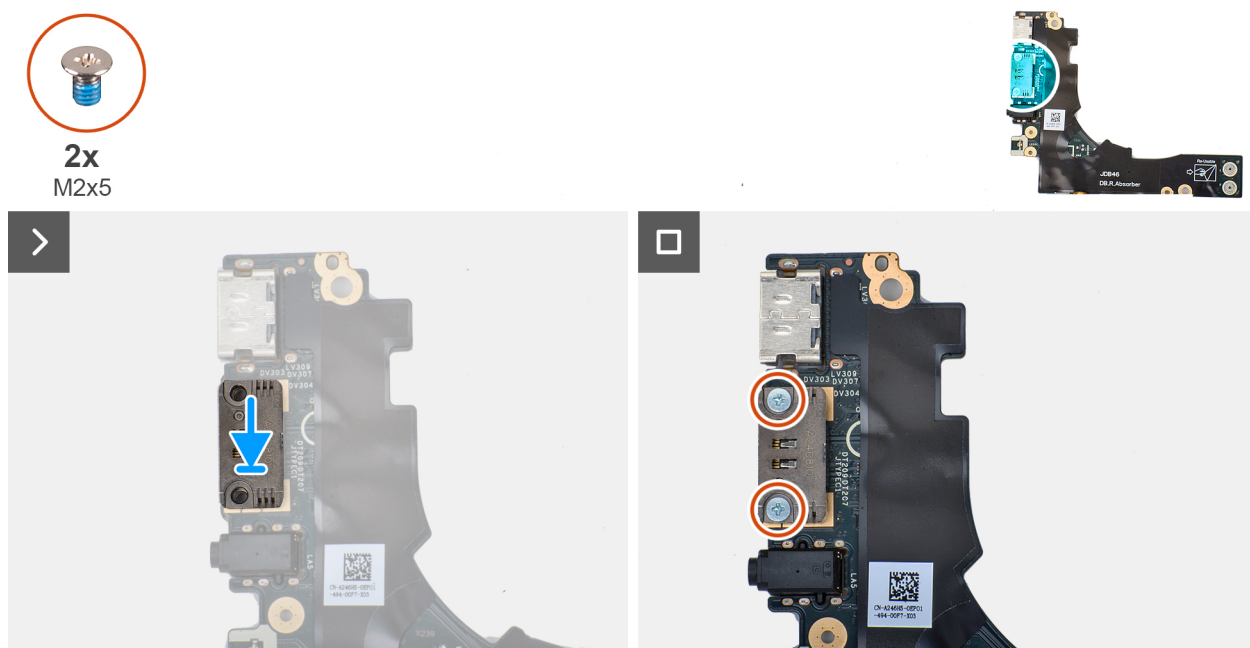
1. Remove the two screws (M2x5) that secure the right USB Type-C module to the right I/O-board.
2. Lift the right USB Type-C module off the right I/O-board.

Installing the right USB Type-C module

CAUTION: The information in this section is intended for authorized service technicians only.

Om denna uppgift

The following image indicates the location of the right USB Type-C module and provides a visual representation of the installation procedure.



Figur 56. Installing the right USB Type-C module

Steg

1. Place the right USB Type-C module on the right I/O-board.
2. Align the screw holes on the right USB Type-C module with the screw holes on the right I/O-board.
3. Replace the screw (M2x5) that secure the right USB Type-C module to the right I/O-board.

Nästa Steg

1. Install the [right I/O-board](#) (for the computer shipped without WWAN card)..
2. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
3. Install the [WWAN card](#) (for the computer shipped with WWAN card).
4. Install the [base cover](#).
5. Install the [nano-SIM card](#).
6. Install the [nano-SIM card tray](#).
7. Follow the procedure in [After working inside your computer](#).

Strömbrytare

Removing the power button

⚠ CAUTION: The information in this section is intended for authorized service technicians only.

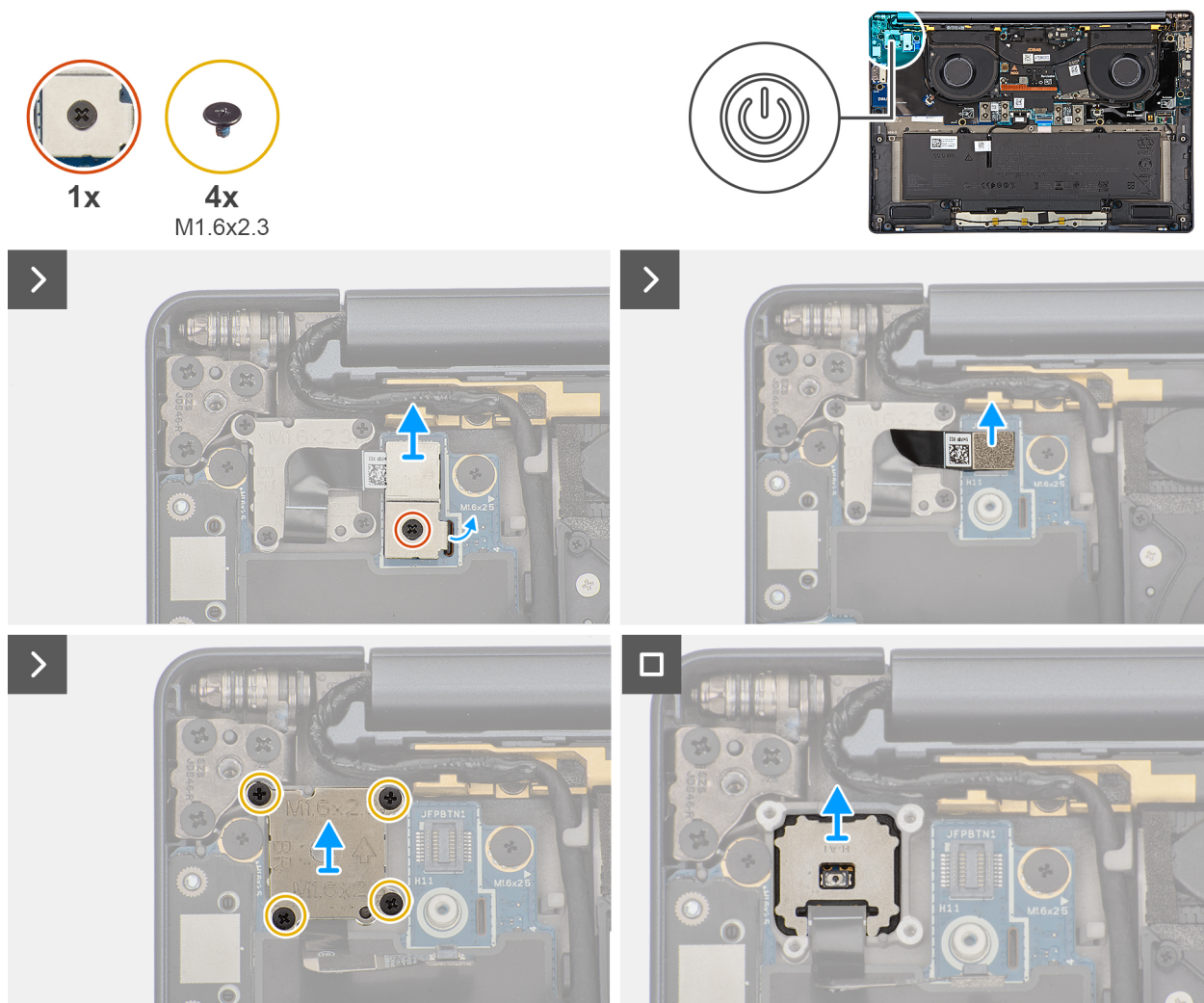
Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
7. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).

Om denna uppgift

i **OBS:** This procedure is applicable only for computers that are shipped without the optional fingerprint reader.

The following image indicates the location of the power button and provides a visual representation of the removal procedure.



Figur 57. Removing the power button

Steg

1. Loosen the single captive screw that secures the power-button bracket.
2. Remove the power-button bracket from the computer.
3. Disconnect the power-button cable from the right I/O-board.
4. Remove the four screws (M1.6x2.3) that secure the power button bracket with power button cable.
5. Remove the power button bracket with power button cable from the computer.
6. Lift and remove the power button from the computer.

Installing the power button

⚠ CAUTION: The information in this section is intended for authorized service technicians only.

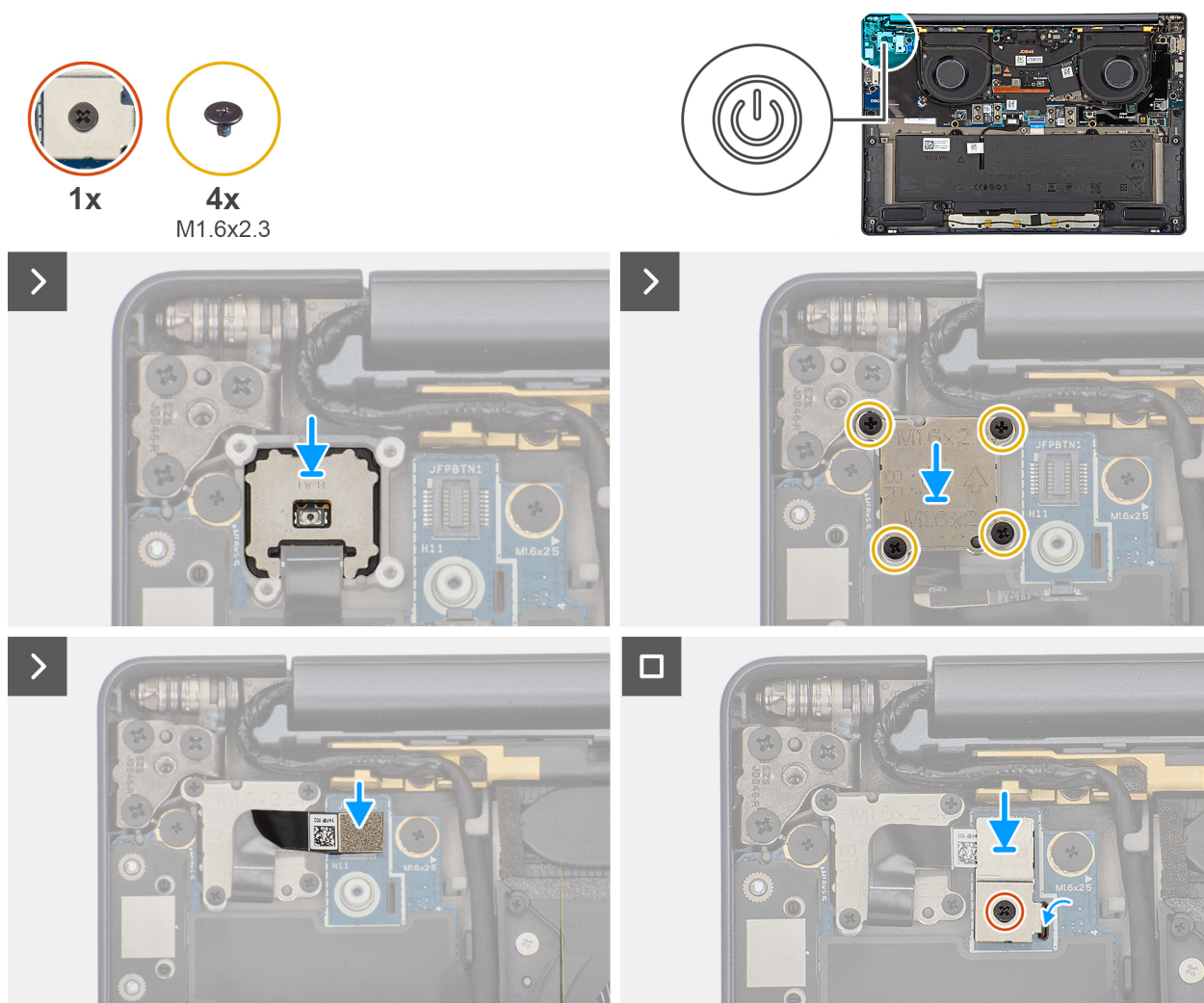
Förutsättningar

If you are replacing a component, remove the existing component before performing the installation procedure.

Om denna uppgift

i **OBS:** This procedure is applicable only when you are installing a power button without the optional fingerprint reader.

The following image indicates the location of the power button and provides a visual representation of the installation procedure.



Figur 58. Installing the power button

Steg

1. Place the power button into its slot on the palm-rest and keyboard assembly.
2. Replace the power-button bracket with the power-button cable on the computer.
3. Replace the four screws (M1.6x2.3) that secure the power-button bracket with the power-button cable.
4. Connect the power-button cable to the right I/O-board.
5. Replace the power-button bracket on the computer.
6. Tighten the single captive screw that secures the power-button bracket.

Nästa Steg

1. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
2. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
3. Install the [WWAN card](#) (for the computer shipped with WWAN card).
4. Install the [base cover](#).
5. Install the [nano-SIM card](#).
6. Install the [nano-SIM card tray](#).
7. Follow the procedure in [After working inside your computer](#).

Bildskärmsenhet

Removing the display assembly

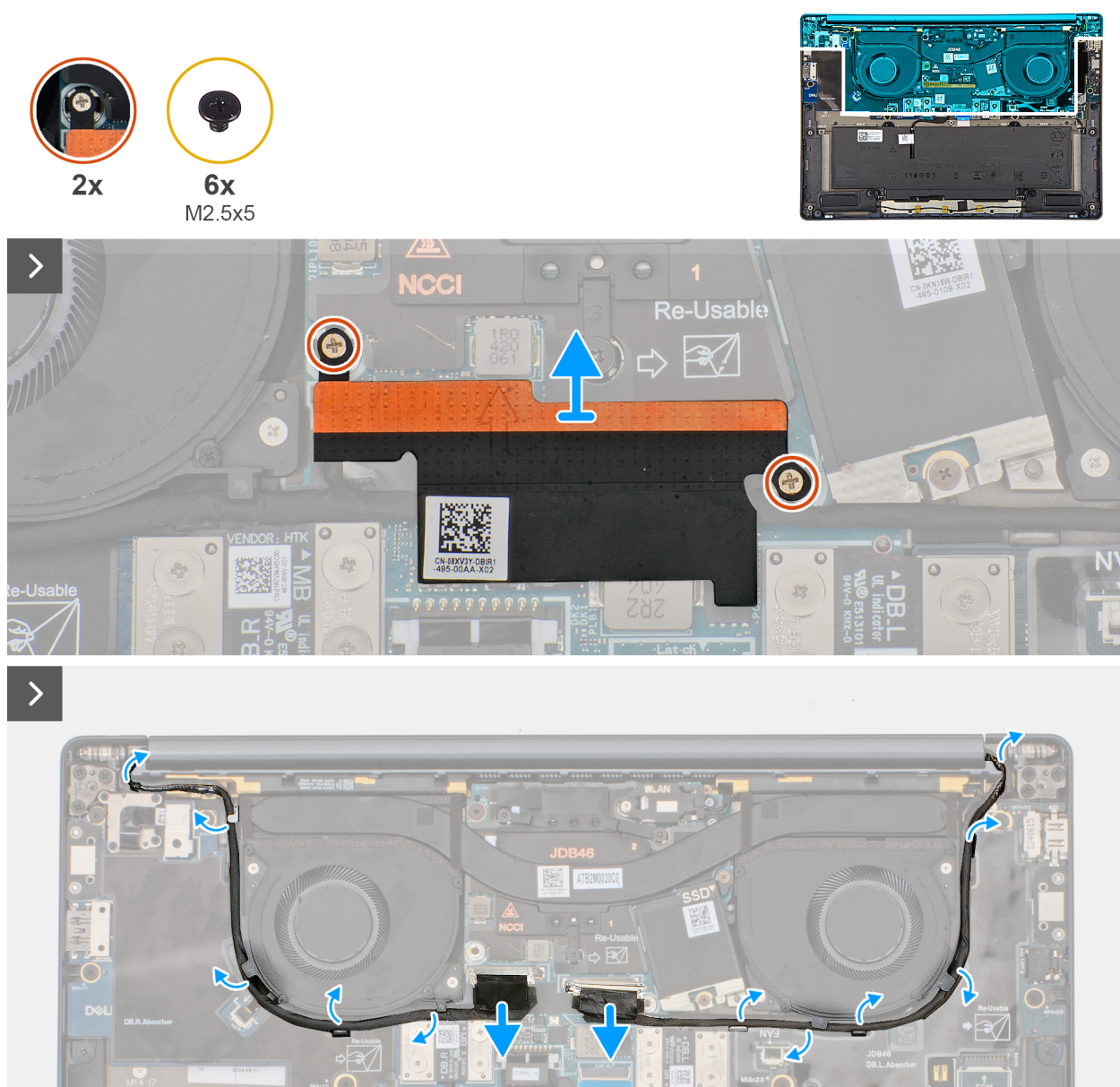
 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

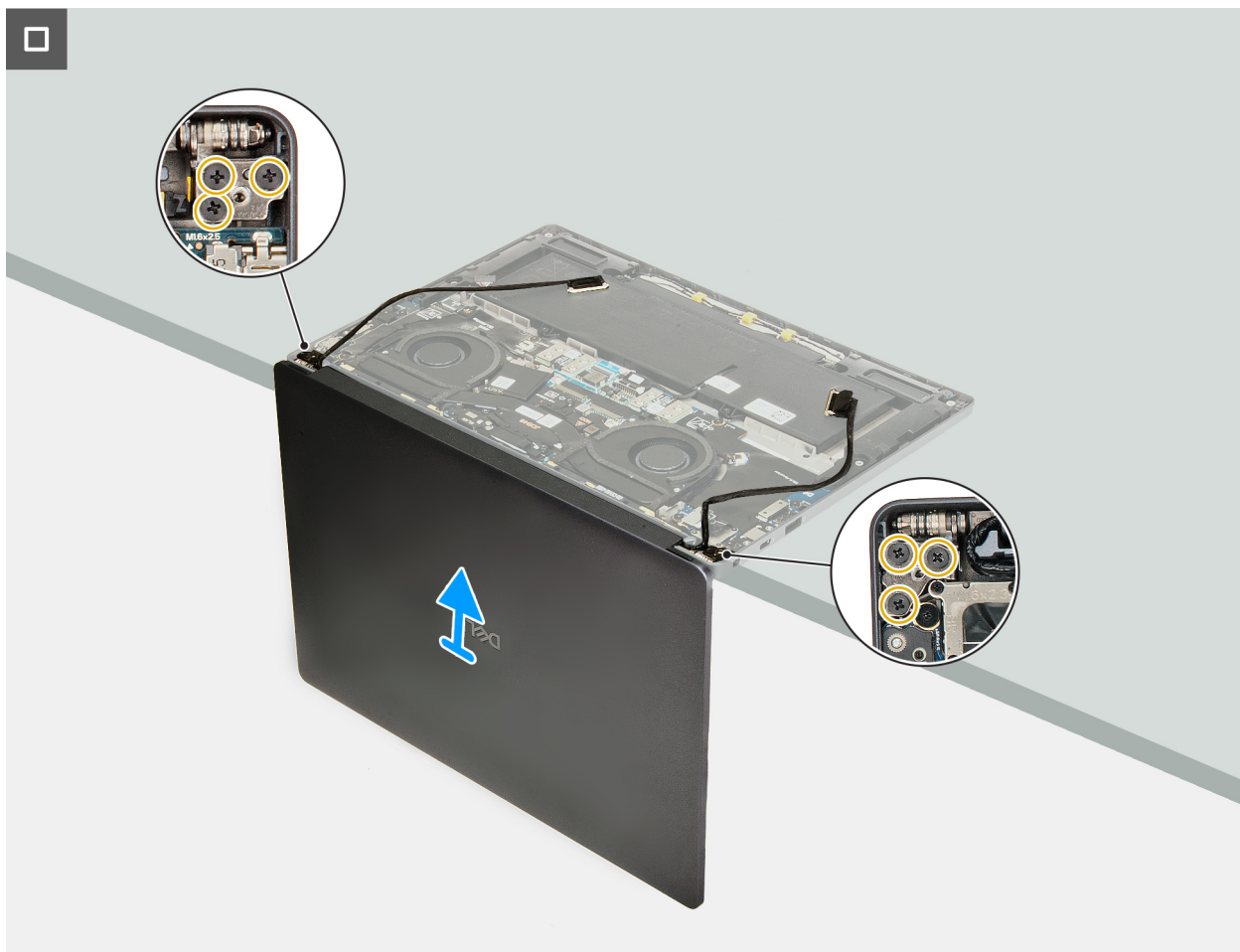
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Om denna uppgift

The following images indicate the location of the display assembly and provide a visual representation of the removal procedure.



Figur 59. Disconnect the display and camera cables



Figur 60. Removing the display assembly



Figur 61. LCD

Steg

1. Remove the two captive screws that secure the display-cable bracket on the system board.
2. Remove the display-cable bracket from the system board.
3. Disconnect and peel off the display cable and camera cable from the system board.
4. Unthread the display cable and camera cable from the routing channels on the bottom side of the fans and the top side of the system board.
5. Pry open the computer to at least 90 degrees and place the system on the edge of a table so that the palm rest is laying flat on the table and the display assembly is over the edge.
6. Remove the six screws (M2.5x5) that secure the display assembly on the palm-rest and keyboard assembly.
7. Lift and remove the display assembly from the computer.

Installing the display assembly

⚠ CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

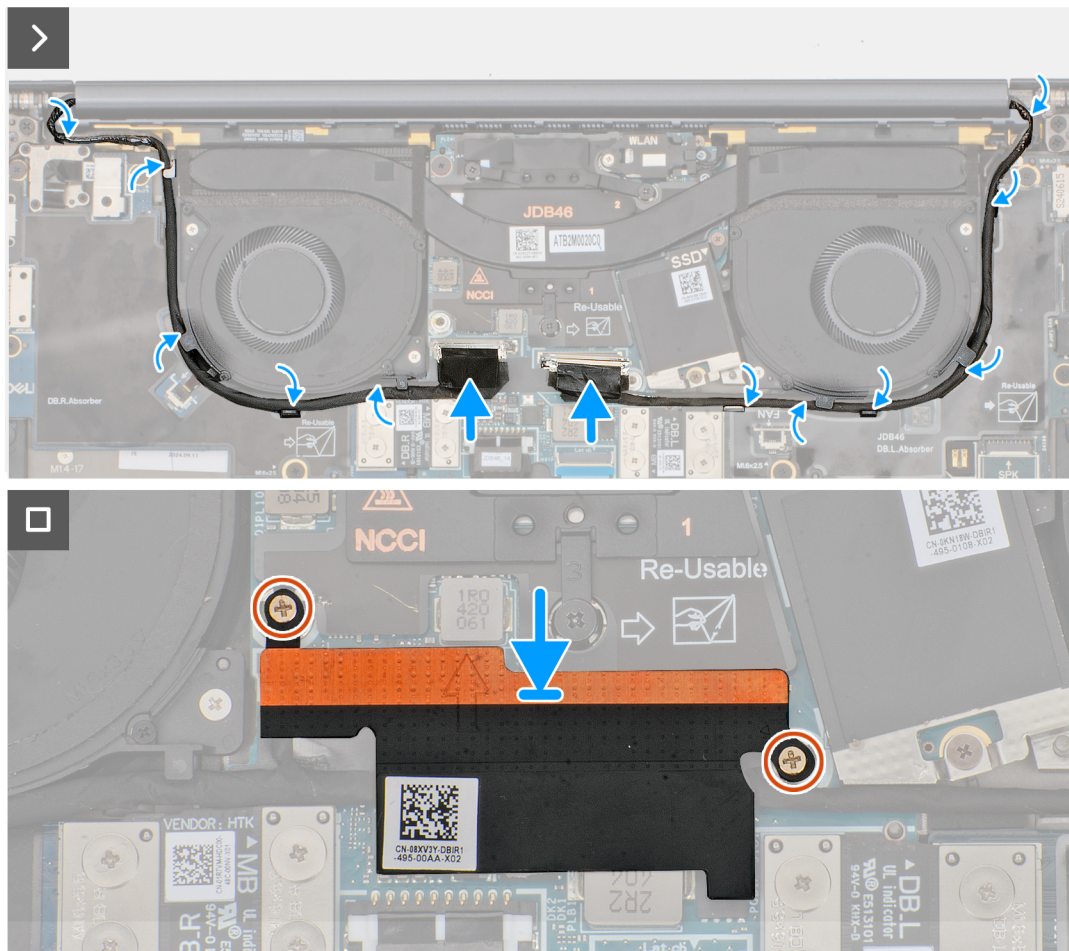
Om denna uppgift

i OBS: Ensure that the hinges are opened to the maximum before replacing the display assembly on the palm-rest and keyboard assembly.

The following images indicate the location of the display assembly and provide a visual representation of the installation procedure.



Figur 62. Installing the display assembly



Figur 63. Connecting the display and camera cables

Steg

1. Place the display assembly on a flat surface.
2. Slide the base assembly at an angle and gently press down on then hinges to align the screw holes on the display hinges with screw holes on the system board.
3. Replace the six screws (M2.5x5) that secure the display assembly on the palm-rest and keyboard assembly.
4. Route the display cable and camera cable from the routing channels on the bottom side of the fans and the top side of the system board.
5. Connect the display cable and camera cable to the system board.
6. Place and align the display-cable bracket on the system board.
7. Replace the two captive screws that secure the display-cable bracket on the system board.

Nästa Steg

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Moderkort

Removing the system board

CAUTION: The information in this section is intended for authorized service technicians only.

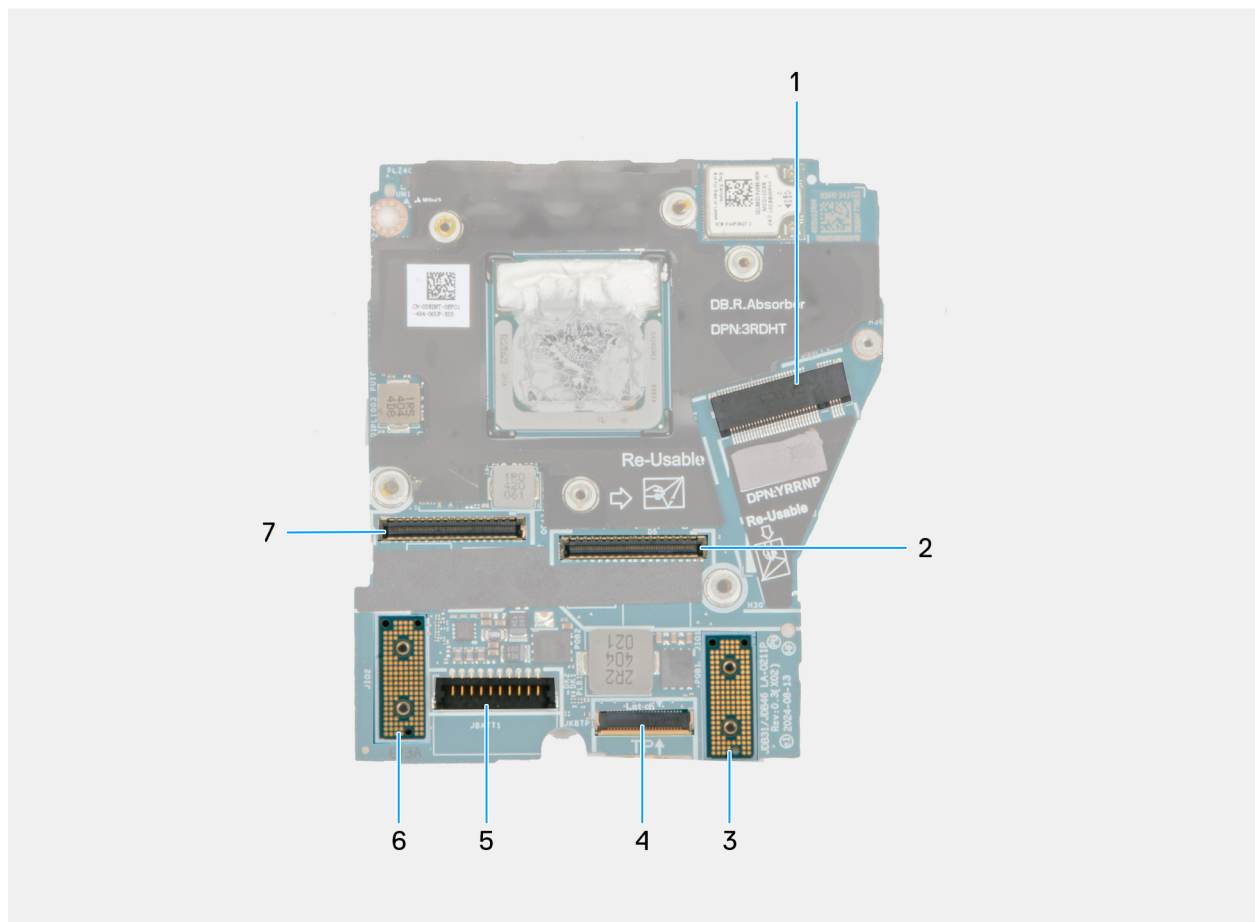
Förutsättningar

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid state drive](#).
4. Remove the [battery](#).
5. Remove the [heat sink](#).

i **OBS:** The system board can be removed and installed along with the heat sink. It simplifies the removal and installation procedure and prevents damage to the thermal bond between the system board and heat sink.

Om denna uppgift

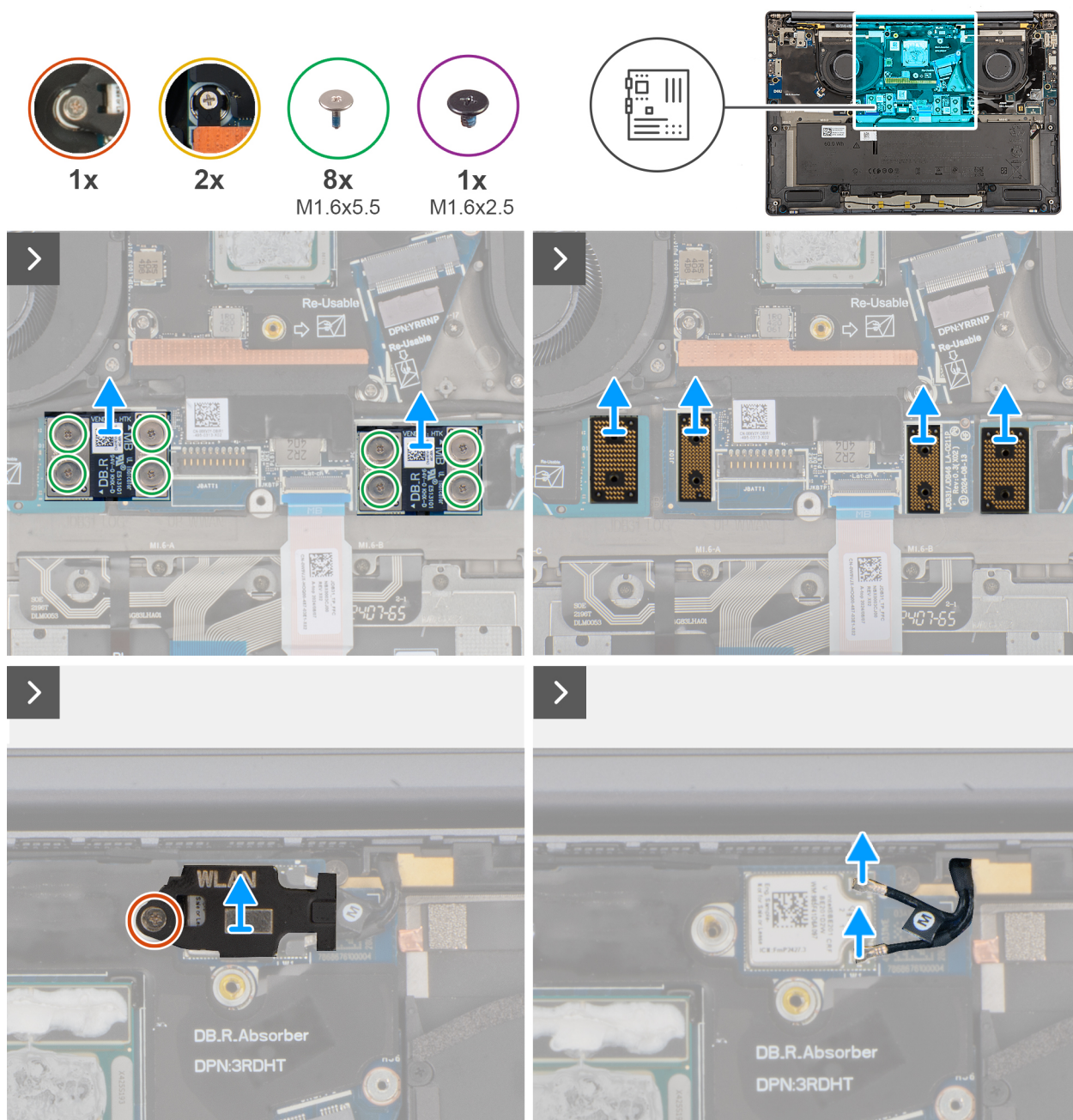
The following image indicates the connectors on your system board.



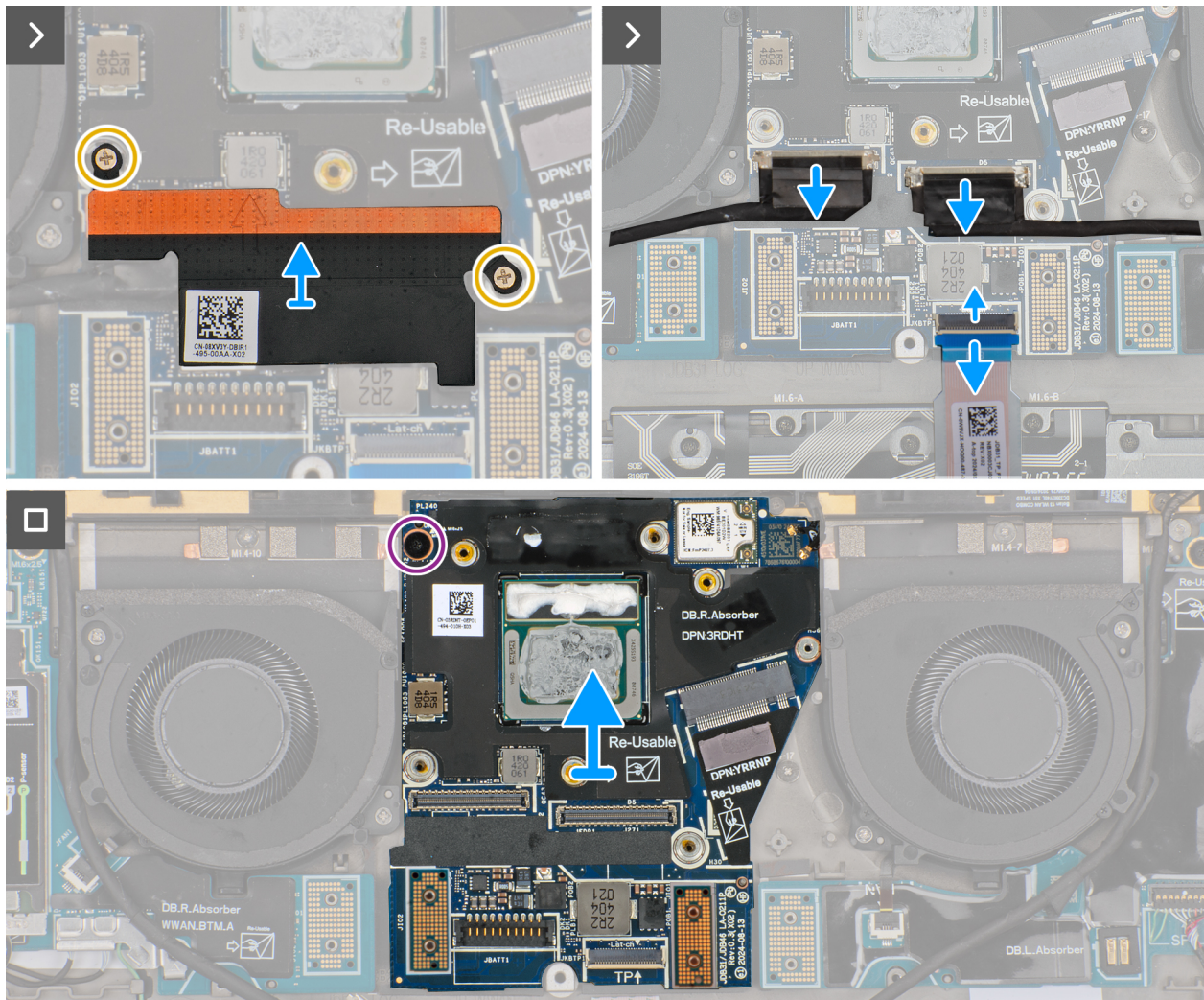
Figur 64. System board callout

1. SSD slot connector
2. Display-cable connector
3. Left I/O-board connector
4. Touchpad-cable connector
5. Battery-cable connector
6. Right I/O-board connector
7. IR-camera cable connector

The following images indicate the location of the system board and provide a visual representation of the removal procedure.



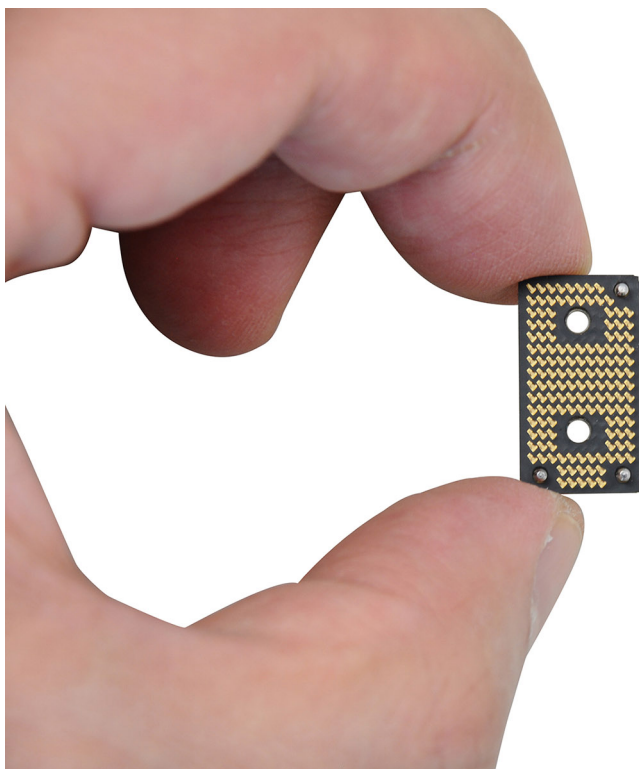
Figur 65. Removing the system board



Figur 66. Removing the system board

Step

1. Remove the eight screws (M1.6x5.5) that secure the right I/O-board and left I/O-board cable connectors to the system board.
 - i** **OBS:** When reinstalling the right I/O-board cable connectors, align the connector so that the side labeled 'MB' is connected to the system board, and the side labeled **DB-R** is connected to the right I/O-board.
 - i** **OBS:** When reinstalling the left I/O-board cable connectors, align the connector so that the side labeled 'MB' is connected to the system board, and the side labeled **DB-L** is connected to the left I/O-board.
2. Remove the right I/O-board and left I/O-board cable connectors from the system board.
3. Remove the interposer boards from the right I/O-board, left I/O-board, and system board.
 - ⚠ CAUTION:** Technicians must remove the interposer board immediately after removing the I/O board cable connectors to prevent the board from falling out of the system during subsequent removal procedures.
 - i** **OBS:** The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 67. Interposed board handling

4. Loosen the single captive screw that secures the WLAN module bracket on the system board.
5. Lift and remove the WLAN module bracket from the system board.
6. Disconnect the WLAN antennas from the WLAN module.
7. Loosen the two captive screws that secure the display-cable bracket on the system board.
8. Remove the display-cable bracket from the system.
9. Disconnect the display cable, camera cable, and touchpad cable from the system board.
 ⓘ **OBS:** To disconnect the touchpad cable, make sure to unlock the latch.
10. Remove the screw (M1.6x2.5) that secures the system board in place.
11. Lift and remove the system board from the computer.
 ⓘ **OBS:** If replacing the system board, peel off the SSD thermal pad sticker and mylar and then transfer it over to the new system board.

Installing the system board

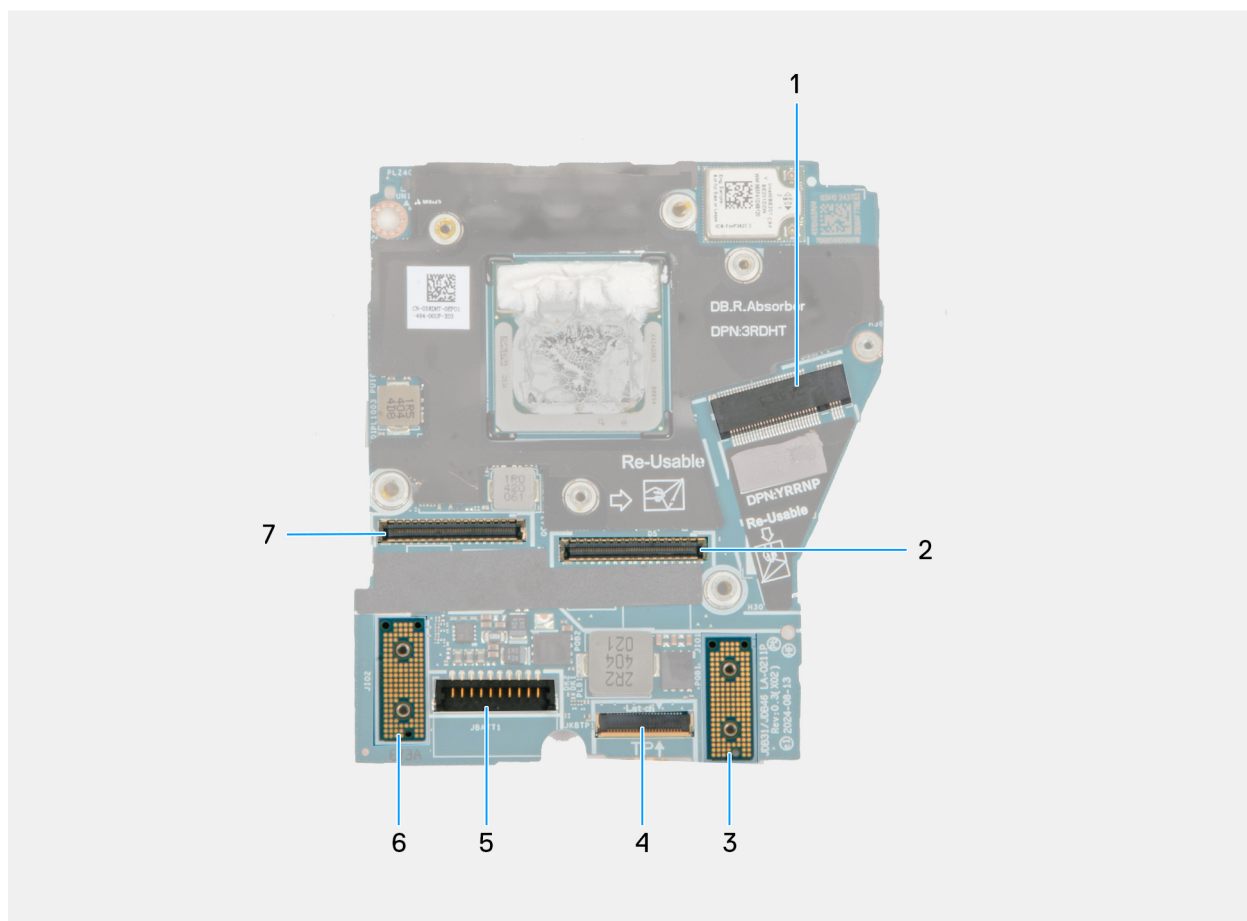
⚠ CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

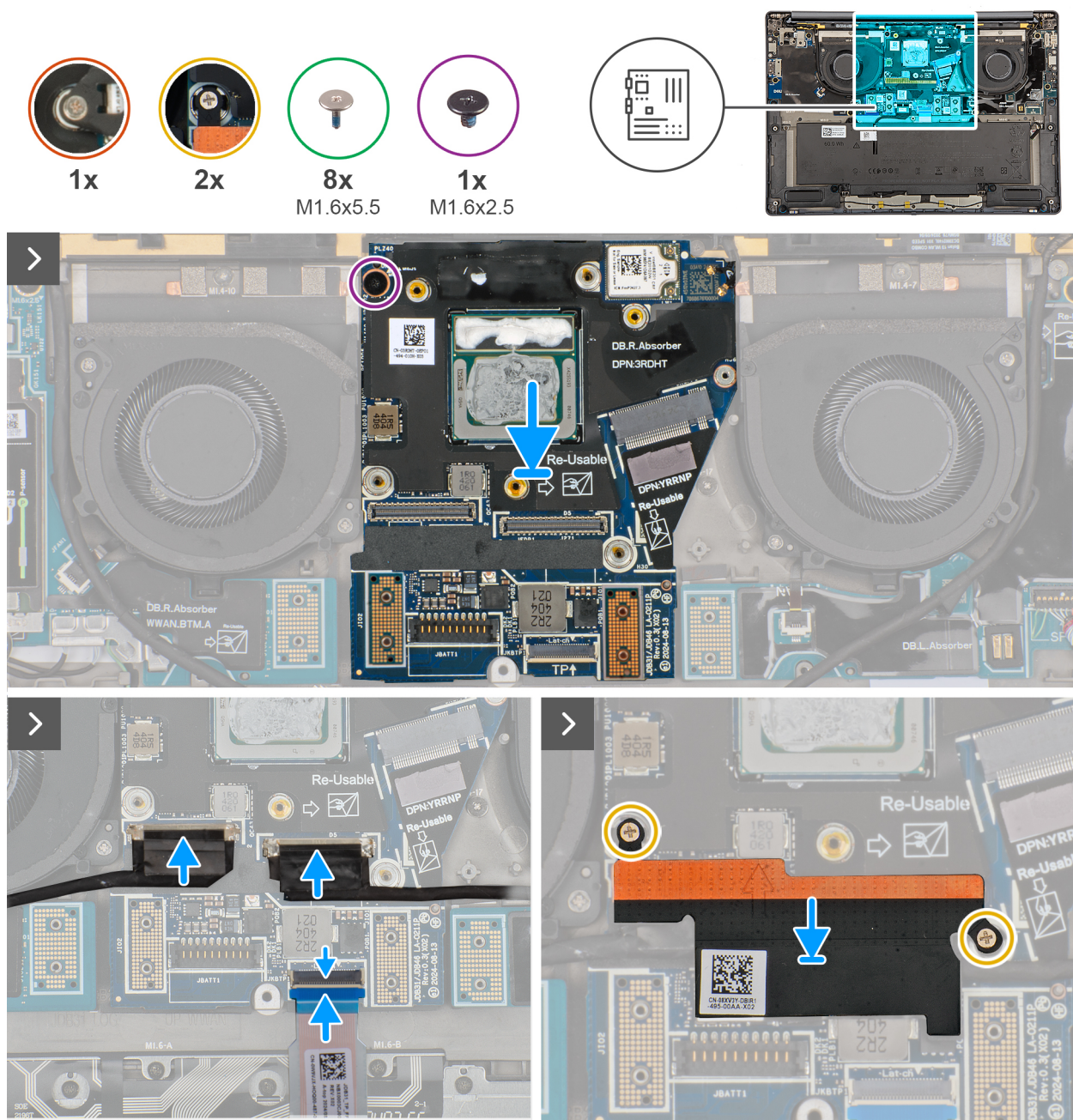
The following image indicates the connectors on your system board.



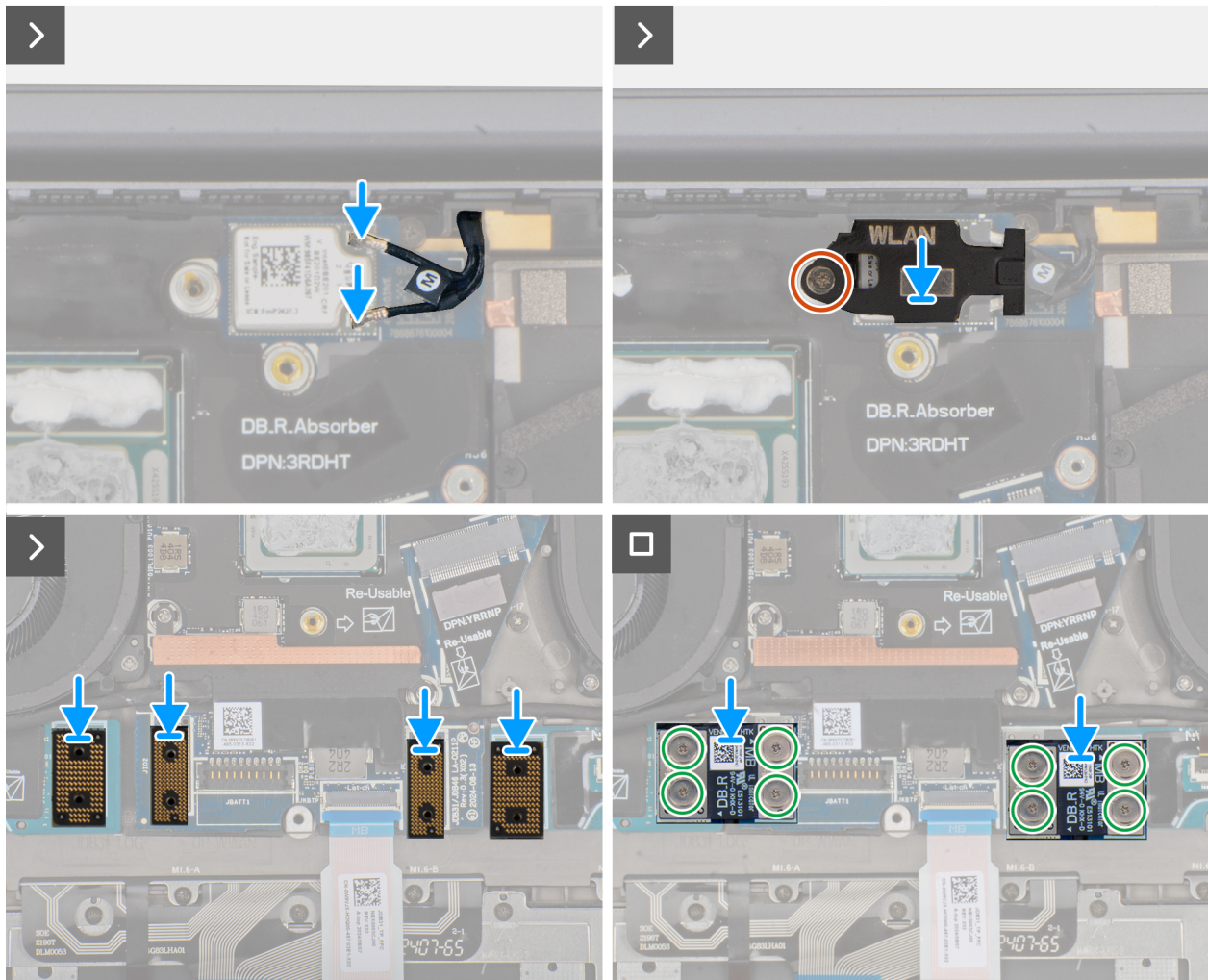
Figur 68. System board callout

1. SSD slot connector
2. Display-cable connector
3. Left I/O-board connector
4. Touchpad-cable connector
5. Battery-cable connector
6. Right I/O-board connector
7. IR-camera cable connector

The following images indicate the location of the system board and provide a visual representation of the installation procedure.



Figur 69. Installing the system board

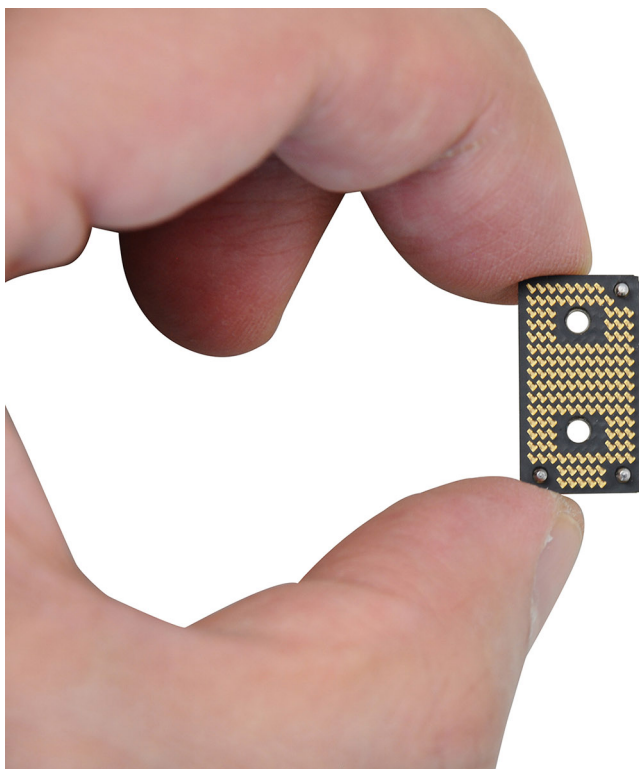


Figur 70. Installing the system board

Steg

1. Place the system board into the respective slot on the palm-rest and keyboard assembly.
2. Replace the screw (M1.6x2.5) that secures the system board to the palm-rest and keyboard assembly.
3. Connect the display cable, camera cable, and touchpad cable to the system board.
4. Align and place the display-cable bracket on the system board.
5. Tighten the two captive screws that secure the display-cable bracket on the system board.
6. Connect the WLAN antennas to the WLAN module.
7. Align and replace the WLAN-module bracket on the system board.
8. Tighten the single captive screw that secures the WLAN-module bracket on the system board.
9. Replace the interposer boards on the right I/O-board, left I/O-board, and system board.

i OBS: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Figur 71. Holding the interpose board

10. Replace the eight screws (M1.6x5.5) that secure the right I/O-board and left I/O-board cable connectors on the system board.

i **OBS:** You must apply the XPG gel to the DRAMs of the CPU package.

Nästa Steg

1. Install the [heat sink](#).
2. Install the [battery](#).
3. Install the [M.2 2230 solid state drive](#).
4. Install the [base cover](#).
5. Follow the procedure in [After working inside your computer](#).

Tangentbord

Removing the keyboard assembly

⚠ CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

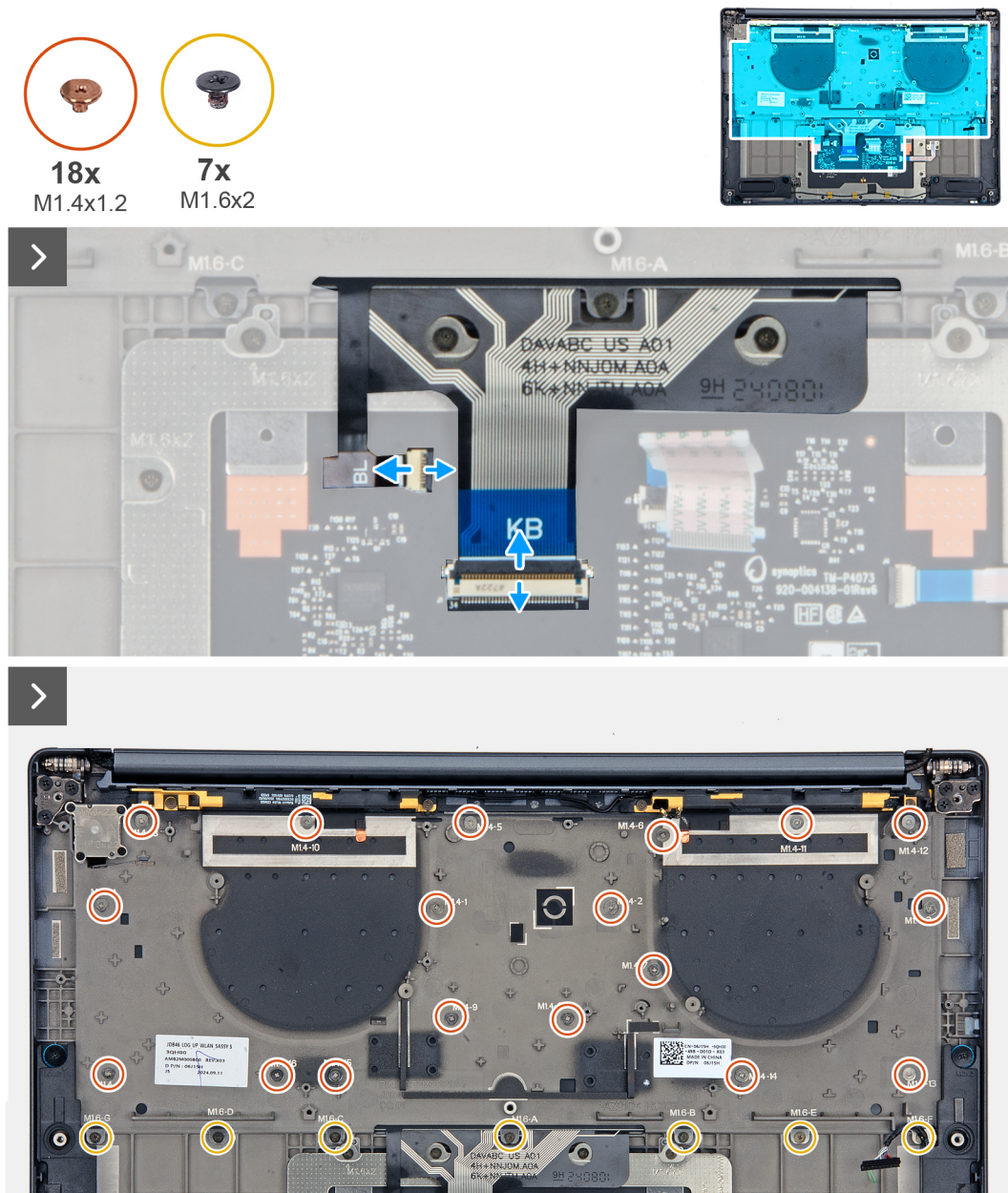
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for computers shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [speaker](#) (for the computer shipped with WWAN card).
7. Remove the [speaker](#) (for the computer shipped without WWAN card).
8. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).
9. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).

10. Remove the [left I/O-board](#).
11. Remove the [left fan](#).
12. Remove the [right fan](#).
13. Remove the [power button](#).
14. Remove the [battery](#).
15. Remove the [heat sink](#).
16. Remove the [system board](#).

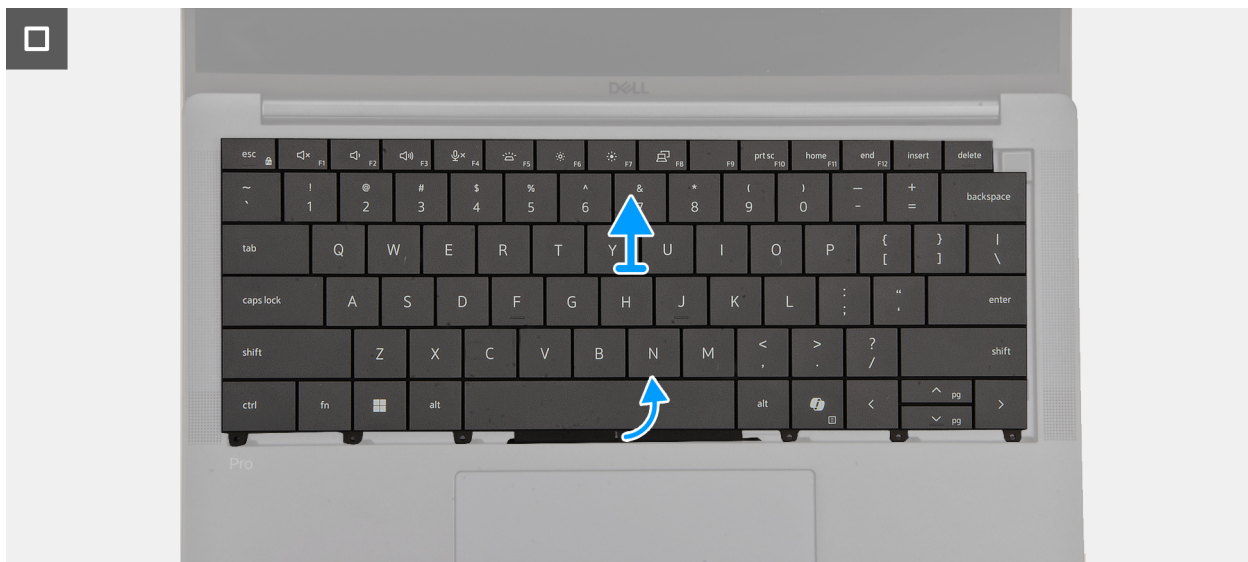
i **OBS:** When removing the system board to replace or access other parts, the system board can be removed and installed with the heat sink attached to simplify the procedure and preserve the thermal bond between the system board and heat sink.

Om denna uppgift

The following images indicate the location of the keyboard and provide a visual representation of the removal procedure.



Figur 72. Removing the keyboard assembly



Figur 73. Removing the keyboard assembly

Steg

1. Unroute the WWAN antenna cable from the keyboard bracket.
2. Disconnect the keyboard cable and keyboard-backlight cable from the touchpad module.
3. Remove the eighteen screws (M1.4x1.2) and seven screws (M1.6x2) that secure the keyboard assembly to the computer.
4. Lift the keyboard to remove it from the computer.

Installing the keyboard assembly

CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

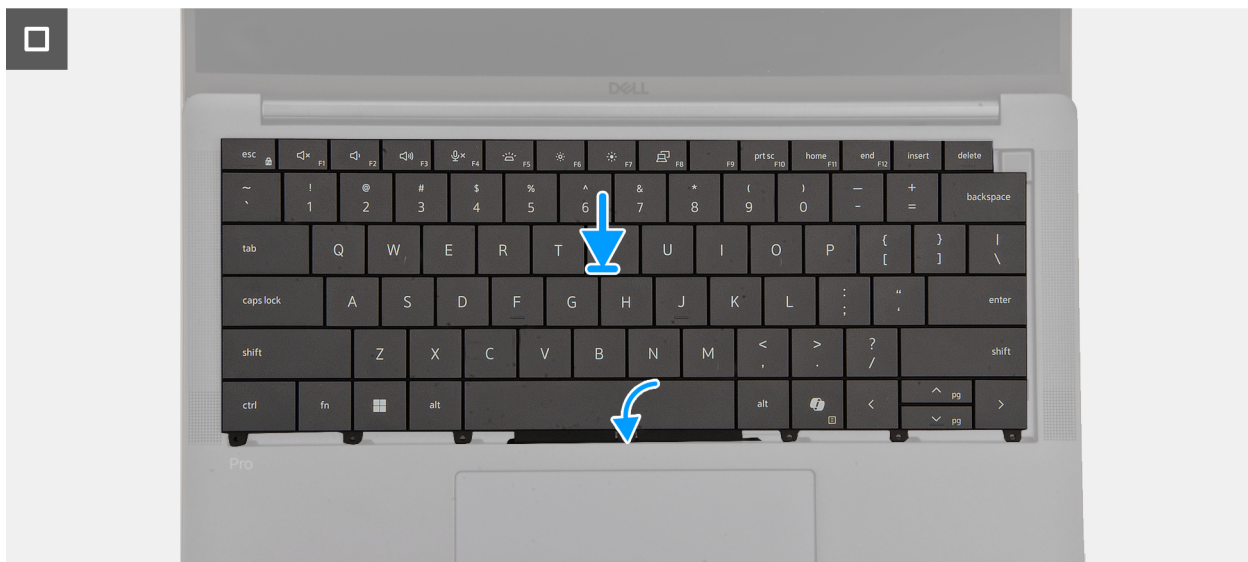
The following images indicate the location of the keyboard and provide a visual representation of the installation procedure.



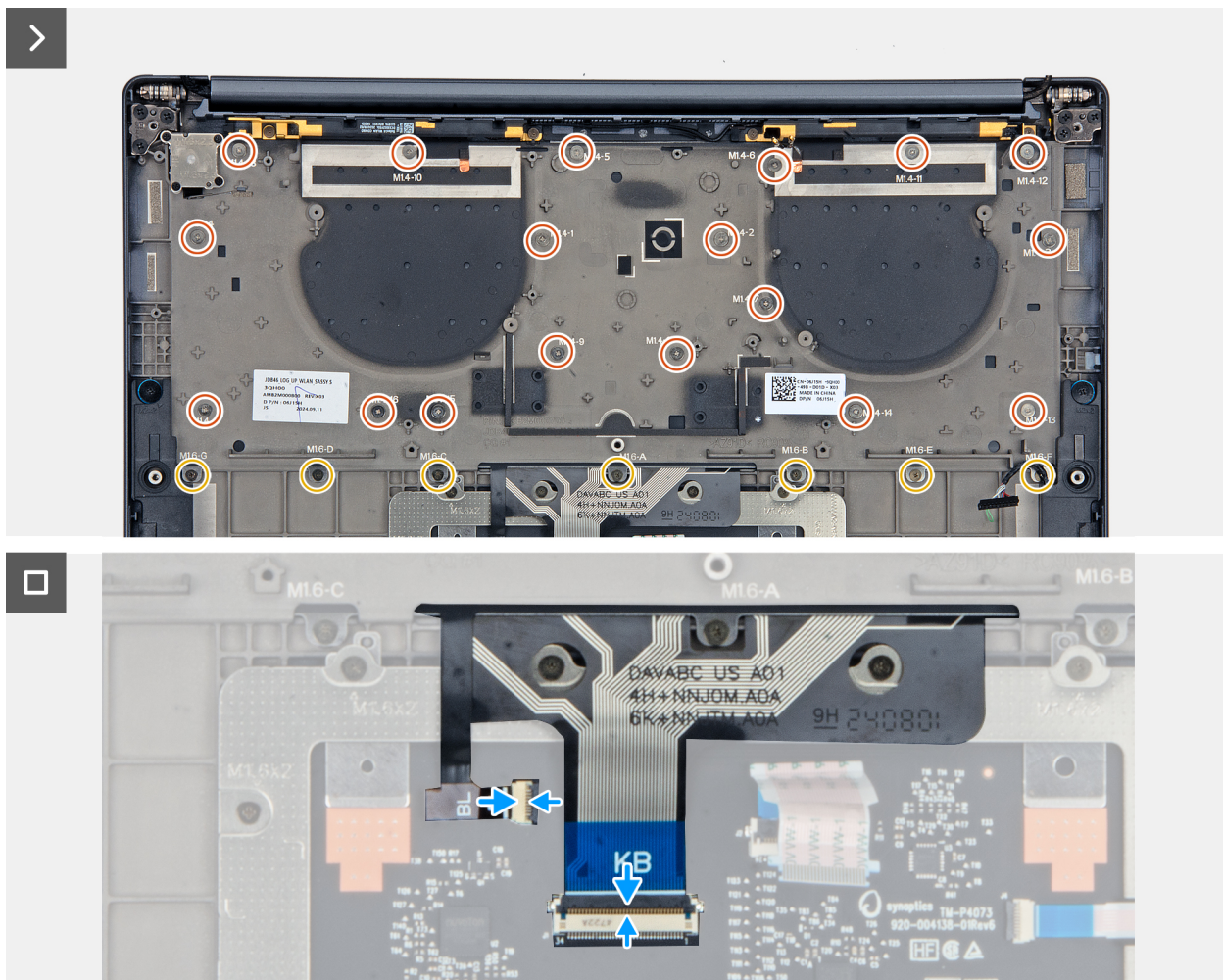
18x
M1.4x1.2



7x
M1.6x2



Figur 74. Installing the keyboard assembly



Figur 75. Installing the keyboard assembly

Steg

1. Align the screw holes on the keyboard to the screw holes on the keyboard support plate and place the keyboard on the keyboard support plate.
2. Replace the eighteen screws (M1.4x1.2) and seven screws (M1.6x2) that secure the keyboard assembly to the system.
3. Connect the keyboard cable and keyboard-backlight cable from the touchpad module.

Nästa Steg

1. Install the [system board](#).
2. Install the [heat sink](#).
3. Install the [battery](#).
4. Install the [power button](#).
5. Install the [left fan](#).
6. Install the [right fan](#).
7. Install the [left I/O-board](#).
8. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
9. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
10. Install the [speaker](#) (for the computer shipped with WWAN card).
11. Install the [speaker](#) (for the computer shipped without WWAN card).
12. Install the [WWAN card](#) (for the computer shipped with WWAN card).
13. Install the [nano-SIM card](#) and [nano-SIM card tray](#) (for the computer shipped with WWAN card).
14. Install the [M.2 2230 solid state drive](#).
15. Install the [base cover](#).
16. Follow the procedure in [After working inside your computer](#).

Handledsstöd

Removing the palm-rest assembly

 **CAUTION:** The information in this section is intended for authorized service technicians only.

Förutsättningar

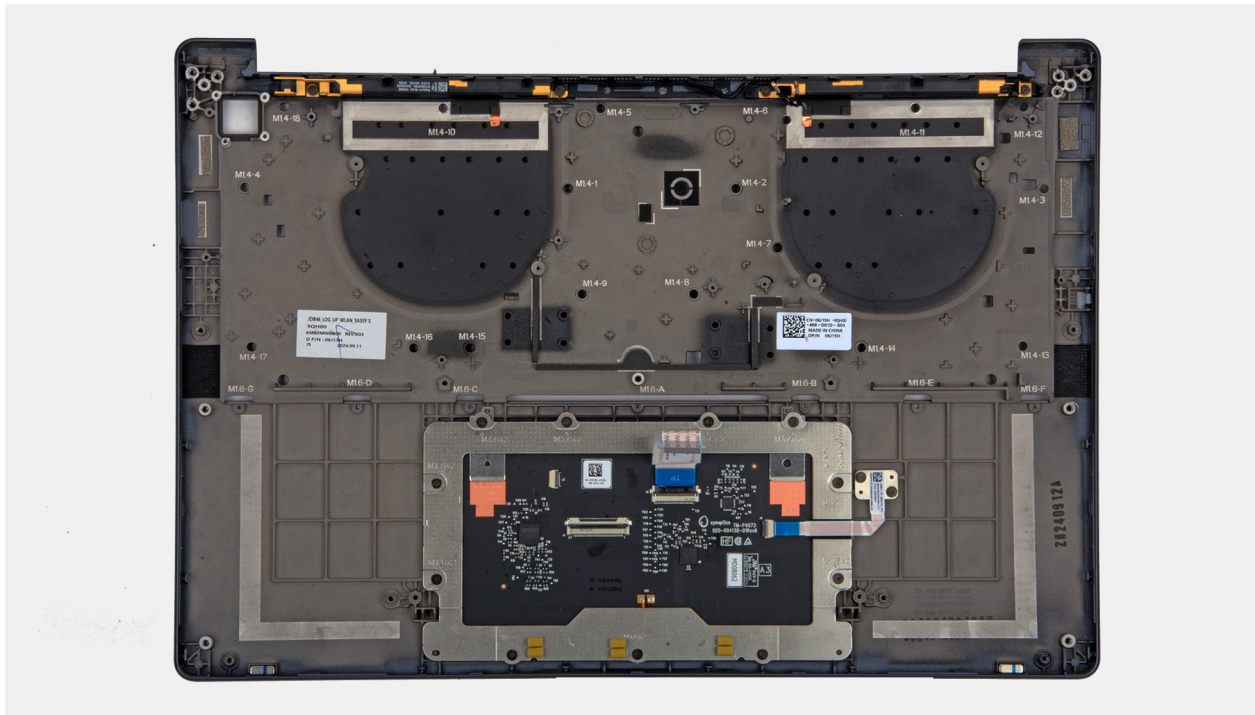
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid-state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for the computer shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [speaker](#) (for the computer shipped with WWAN card).
7. Remove the [speaker](#) (for the computer shipped without WWAN card).
8. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).
9. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
10. Remove the [left I/O-board](#).
11. Remove the [power button](#).
12. Remove the [battery](#).
13. Remove the [heat sink](#).
14. Remove the [system board](#).
15. Remove the [display assembly](#).
16. Remove the [keyboard](#).

 **OBS:** When removing the system board to replace or access other parts, the system board can be removed and installed with the heat sink attached to simplify the procedure and preserve the thermal bond between the system board and heat sink.

Om denna uppgift

 **OBS:** The palm-rest assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the keyboard is malfunctioning and is required to be replaced, replace the entire palm-rest assembly.

The image below shows the palm-rest assembly after the pre-removal parts procedures have been performed for any palm-rest assembly replacement.



Figur 76. Palm-rest

Steg

After performing the pre-requisites, you are left with the palm-rest assembly.

Installing the palm-rest assembly

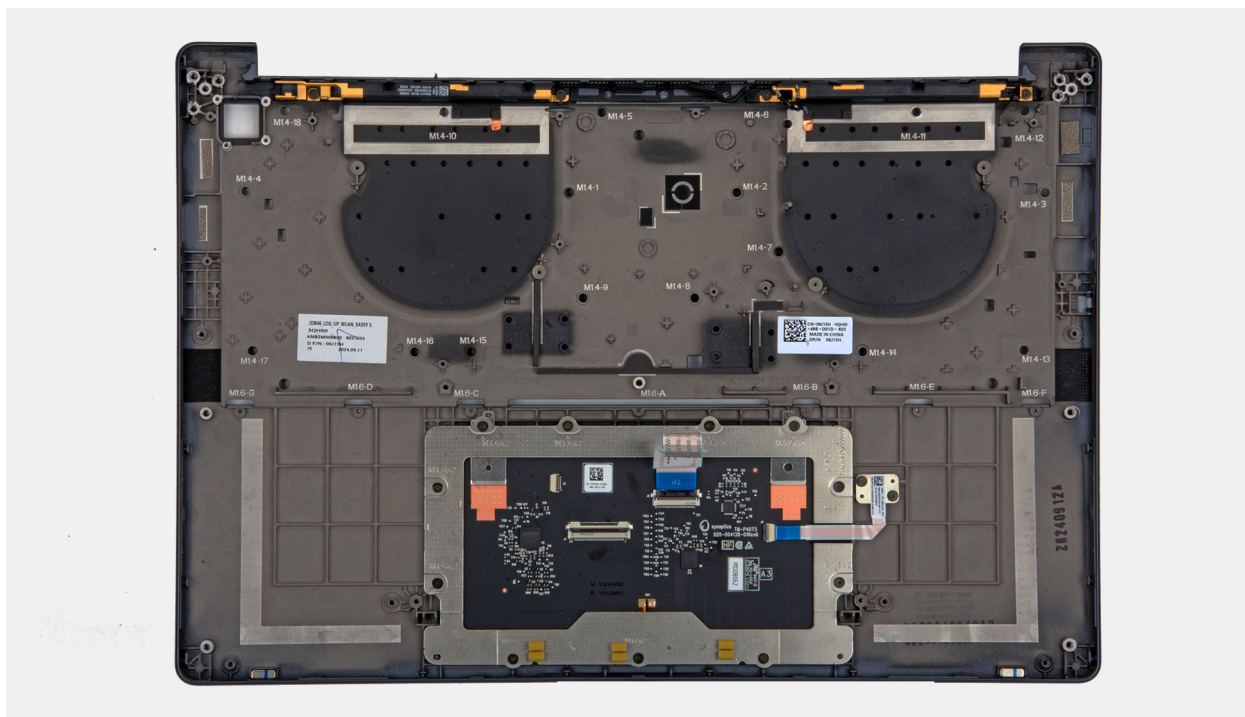
CAUTION: The information in this section is intended for authorized service technicians only.

Förutsättningar

Om du byter ut en komponent, ta bort den befintliga komponenten innan du utför installationsproceduren.

Om denna uppgift

The following image indicates the location of the palm-rest assembly and provides a visual representation of the installation procedure.



Figur 77. Palm-rest

Steg

Place the palm-rest assembly on a flat surface and perform the post-requisites to install the palm-rest assembly.

Nästa Steg

1. Install the [keyboard](#).
2. Install the [display assembly](#).
3. Install the [system board](#).
4. Install the [heat sink](#).
5. Install the [battery](#).
6. Install the [power button](#).
7. Install the [left I/O-board](#).
8. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
9. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
10. Install the [speaker](#) (for the computer shipped with WWAN card)..
11. Install the [speaker](#) (for the computer shipped without WWAN card).
12. Install the [WWAN card](#) (for the computer shipped with WWAN card).
13. Install the [nano-SIM card](#) and [nano-SIM card tray](#) (for the computer shipped with WWAN card).
14. Install the [M.2 2230 solid-state drive](#).
15. Install the [base cover](#).
16. Follow the procedure in [After working inside your computer](#).

Programvara

I det här kapitlet beskrivs de operativsystem som stöds tillsammans med instruktioner om hur du installerar drivrutinerna.

Operativsystem

Din Dell Pro 14 Premium PA14250 stöder följande operativsystem:

- Windows 11 24H2
- Windows 11 23H2
- Windows 10 22H2
- Ubuntu Linux 24.04

 **OBS:** Windows 10 22H2 is only for custom configured computers downgraded by end users from Windows 11. Windows 10 22H2 downgraded installations are supported by customer internal IT and is subjected to the Microsoft Windows 10 End of Support plan.

Drivrutiner och hämtningsbara filer

Vid felsökning, hämtning eller installation av drivrutiner rekommenderas du att läsa Dells kunskapsbasartikel Vanliga frågor om drivrutiner och hämtningsbara filer [000123347](#).

BIOS-inställningar

i **OBS:** Beroende på datorn och dess installerade enheter visas kanske inte alla alternativ som beskrivs i det här avsnittet.

⚠ CAUTION: Vissa ändringar kan medföra att datorn inte fungerar som den ska. Innan du ändrar inställningarna i BIOS-konfigurationen rekommenderar vi att du skriver upp de ursprungliga inställningarna för framtida referens.

Använd BIOS-konfigurationen i följande syften:

- Få information om hårdvaran som är installerad på datorn, till exempel storleken på RAM-minnet och lagringsenhetens kapacitet.
- Ändra information om systemkonfigurationen.
- Ställa in eller ändra alternativ som användaren kan välja, till exempel användarlösenord, typ av lagringsenhet som är installerad och aktivera eller avaktivera basenheter.

Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

Navigeringstangenter

i **OBS:** För de flesta BIOS-inställningsalternativen gäller att ändringar som görs sparas men inte träder i kraft förrän datorn startas om.

Tabell 32. Navigeringstangenter

Tangenter	Navigering
Upp-pil	Går till föregående fält.
Ned-pil	Går till nästa fält.
Retur	Markerar ett värde i det valda fältet (om sådant finns) eller följer länken i fältet.
Mellanslag	Visar eller döljer en nedrullningsbar meny, om sådan finns.
Flik	Går till nästa fokuserade område.
Esc	Flyttar till föregående sida tills du ser huvudskärmen. Om du trycker på Esc i huvudskärmen visas ett meddelande som uppmanar dig att spara alla osparade ändringar och startar om datorn.

F12-menyn för engångsstart

För att öppna menyn för engångsstart sätter du på eller startar om datorn och trycker sedan omedelbart på F12.

i **OBS:** Om du inte kan öppna menyn för engångsstart upprepar du ovanstående åtgärd.

Engångsstartmenyn visar de enheter som du kan starta från, inklusive alternativen för att starta diagnostik. Alternativen i startmenyn är följande:

- Borttagbar enhet (om sådan finns)
- STXXXX enhet (om sådan finns)

i **OBS:** XXX anger numret på SATA-enheten.

- Optisk enhet (om sådan finns)

- SATA-hårddisk (om sådan finns)
- Diagnostik

Engångsstartmenyn visar även alternativet för att gå till BIOS-inställningar.

View Advanced Setup options

Om denna uppgift

Some BIOS Setup options are only visible by enabling **Advanced Setup** mode, which is disabled by default.

 **OBS:** BIOS Setup options, including **Advanced Setup** options, are described in [BIOS setup options](#).

To enable Advanced Setup:

Steg

1. Enter BIOS Setup.
The Overview menu appears.
2. Click the **Advanced Setup** option to move it to the **ON** mode.
Advanced BIOS Setup options are displayed.

View Service options

Om denna uppgift

Service options are hidden by default and only visible by entering a hotkey command.

 **OBS:** Service options are described in [BIOS Setup options](#).

To view Service options:

Steg

1. Enter BIOS Setup.
The Overview menu appears.
2. Enter the hotkey combination **Ctrl + Alt + s** to view the **Service** options.
Service options are displayed.

System Setup options

 **OBS:** For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the computer.

 **OBS:** Depending on your computer and its installed devices, the items that are listed in this section may differ.

Tabell 33. System Setup options—Overview menu

Overview	
Dell Pro 14 Premium PA14250	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.

Tabell 33. System Setup options—Overview menu (fortsättning)

Overview	
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
BATTERY Information	
Primary	Displays the primary battery of the computer.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether an AC adapter is connected. If connected, displays the type of AC adapter that is connected.
Battery Life Type	Displays the battery life type.
PROCESSOR Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.  OBS: To view this option, enable Service options as described in View Service options.
Current Clock Speed	Displays the current processor clock speed.  OBS: To view this option, enable Service options as described in View Service options.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Processor L2 Cache	Displays the processor L2 cache size.
Processor L3 Cache	Displays the processor L3 cache size.
Microcode Version	Displays the microcode version.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel vPro Technology	Displays whether the processor is Intel vPro Technology capable.
MEMORY Information	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 33. System Setup options—Overview menu (fortsättning)

Overview	
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.  OBS: To view this option, enable Service options as described in View Service options .
Memory Technology	Displays the technology that is used for the memory.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
DEVICES Information	
Panel Type	Displays the type of display panel available on the computer.
Panel Revision	Displays the Panel Revision of the computer.
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the MAC address of the video pass-through.
Cellular Device	Displays the Cellular Device that is used in the computer.

Tabell 34. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Enable PXE Boot Priority	Enables or disables the PXE Boot Priority. By default, the PXE Boot Priority option is disabled.
Secure Boot	
Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup.	
Enable Secure Boot	Enables the computer to boot using only validated boot software. By default, this Enable Secure Boot option is disabled. For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.  OBS: To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.  CAUTION: If you disable Microsoft UEFI CA, the computer may not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable. By default, the Enable Microsoft UEFI CA option is enabled.

Tabell 34. System Setup options—Boot Configuration menu (fortsättning)

Boot Configuration	
	For additional security, Dell Technologies recommends keeping the Enable Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the Deployed Mode is selected. Deployed Mode should be selected for normal operation of Secure Boot.
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the Enable Custom Mode option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Custom Mode Key Management	Selects the custom values for expert key management. By default, the PK option is selected.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Tabell 35. System Setup options—Integrated Devices menu

Integrated Devices	
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can select between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	Enables the camera. By default, the Enable Camera option is enabled.  OBS: Depending on the configuration ordered, the camera setup option may not be available.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  OBS: Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the Enable Internal Speaker option is enabled.
USB/Thunderbolt Configuration	
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled.

Tabell 35. System Setup options—Integrated Devices menu (fortsättning)

Integrated Devices	
Enable External USB Ports	Enables the external USB ports. By default, the Enable External USB Ports option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Thunderbolt Technology Support	
Enable Thunderbolt Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the Enable Thunderbolt Technology Support option is enabled.
Enable Thunderbolt Boot Support	
Enable Thunderbolt Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Preboot. By default, the Enable Thunderbolt Boot Support option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Disable USB4 PCIE Tunneling	
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the Disable USB4 PCIE Tunneling option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Video/Power only on Type-C Ports	
Video/Power only on Type-C Ports	Enables or disables the Type-C port functionality to video or only power. By default, the Video/Power only on Type-C Ports option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock	
Type-C Dock Override	Enables or disables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/LAN submenu is activated. By default, the Type-C Dock Override option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock Audio	Enables or disables the usage of audio inputs and outputs from the connected Type-C Dell docking station. By default, the Type-C Dock Audio option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station. By default, the Type-C Dock LAN option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Miscellaneous Devices	

Tabell 35. System Setup options—Integrated Devices menu (fortsättning)

Integrated Devices	
Enable Fingerprint Reader Device	Enables or disables the Fingerprint Reader Device option. By default, the Enable Fingerprint Reader Device option is enabled.
Unobtrusive Mode	Enables or disables the unobtrusive mode. When enabled, all system LEDs, LCD panel backlight and audio devices of the computer are turned off. By default, the Unobtrusive Mode option is disabled. i OBS: On computers with collaboration touchpad, the Collaboration Touchpad is disabled when the Unobtrusive Mode option is enabled. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 36. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the AHCI/NVME option is selected. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Storage Interface	
Storage Interface	Displays the information of various onboard drives.
Port Enablement	Enables or disables the M.2 PCIe SSD option. By default, the M.2 PCIe SSD option is enabled.
Smart Reporting	
Enable Smart Reporting	Enables or disables the Smart reporting option. By default, the Smart Reporting option is disabled. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Drive Information	
	Displays the information of onboard drives.

Tabell 37. System Setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	By default, the screen brightness is set to 50 when the computer is running on battery power. Set the screen brightness when the computer is running on battery power. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Brightness on AC power	By default, the screen brightness is set to 100 when the computer is running on AC power. Set the screen brightness when the computer is running on AC power. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Touchscreen	
	Enables or disables the touch screen option. By default, the Touchscreen option is enabled.

Tabell 37. System Setup options—Display menu (fortsättning)

Display	
	 OBS: Only available on computers with touch screen displays.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Full Screen Logo	Enables or disables the computer to display full screen logo, if the image matches screen resolution. By default, the Full Screen Logo option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 38. System Setup options—Connection menu

Connection	
Wireless Device Enable	
WWAN/GPS	Enables or disables the internal WWAN device. By default, the WWAN/GPS option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
WLAN	Enables or disables the internal WLAN device. By default, the WLAN option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Bluetooth	Enables or disables the internal Bluetooth device. By default, the Bluetooth option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the onboard LAN Controller. By default, the Enable UEFI Network Stack option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wireless Radio Control	
Control WLAN Radio	Enable to sense the connection of the computer to a wired network and then disables the selected WLAN radio. Upon disconnection from the wired network, the selected wireless radios are reenabled. By default, the Control WLAN Radio option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Control WWAN Radio	Enables to sense the connection of the computer to a wired network and then disables the selected WWAN radios. By default, the Control WWAN Radio option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable UEFI Bluetooth Stack	If enabled, UEFI Bluetooth protocols are installed and available, allowing pre-OS Bluetooth HID features,

Tabell 38. System Setup options—Connection menu (fortsättning)

Connection	
	By default, the Enable UEFI Network Stack option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Feature	
HTTP(s) Boot	When enabled, supports HTTP(s) boot on the client BIOS, which offers wired or wireless and HTTP/HTTPS connection options.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Modes	In Auto Mode, the boot URL is obtained from the DHCP response; the boot URL specifies the HTTP Boot Server and location of the Network Boot Program (NBP) file. In Manual mode, the user enters the URL in the text box, which must start with <code>http://</code> or <code>https://</code> and end with the NBP file name. By default, Auto Mode is selected.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Boot URL	Displays the URL of boot path.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
CA Certificate	Upload or delete the CA certificate.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 39. System Setup options—Power menu

Power	
Battery Configuration	
	Enables or disables the computer to run on battery during peak power usage hours. Use the table Custom Charge Start and Custom Charge Stop, to prevent AC power usage between certain times of each day. By default, the Adaptive option is selected. Battery settings are adaptively optimized based on your typical battery usage pattern.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enables Advanced Battery Charge Configuration from the beginning of the day to a specified work period. When enabled, Advanced Battery Charged maximizes battery health while still supporting heavy use during the work day. By default, the Enable Advanced Battery Charge Configuration option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Peak Shift	
Enable Peak Shift	Enables or disables the computer to run on battery during peak power usage hours. By default, the Enable Peak Shift option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Connector Power	

Tabell 39. System Setup options—Power menu (fortsättning)

Power	
Type-C Connector Power	Enables the maximum power that can be drawn from the Type-C connector. By default, the 7.5 Watts option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Powershare	
Enable USB PowerShare	Enables or disables the USB PowerShare on the computer. By default, the USB Powershare option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Thermal Management	
	This setting allows for cooling of fan and processor heat management to adjust system performance, noise and temperature. By default, the Optimized option is selected.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the Wake on Dell USB-C Dock option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Sleep	
	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the Block Sleep option is disabled.  OBS: When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the Enable Lid Switch option is enabled.
Power On Lid Open	When enabled, allows the computer to turn on from the off state whenever the lid is opened. By default, the Power On Lid Open option is enabled.
Intel Speed Shift Technology	
	Enables or disables the Intel Speed Shift Technology support. When enabled, the operating system selects the appropriate processor performance automatically. By default, the Intel Speed Shift Technology option is enabled.  OBS: To view this option, enable Service options as described in View Service options.

Tabell 40. System Setup options—Security menu

Security	
TPM 2.0 Security	
TPM 2.0 Security On	Enables or disables the TPM. By default, the TPM 2.0 Security On option is enabled. For additional security, Dell Technologies recommends keeping TPM enabled to allow these security technologies to fully function.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Attestation Enable	The Attestation Enable option controls the endorsement hierarchy of TPM. Disabling the Attestation Enable option prevents TPM from being used to digitally sign certificates. By default, the Attestation Enable option is enabled. For additional security, Dell Technologies recommends keeping the Attestation Enable option enabled.  OBS: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Key Storage Enable	The Key Storage Enable option controls the storage hierarchy of TPM, which is used to store digital keys. Disabling the Key Storage Enable option restricts the ability of TPM to store owner's data. By default, the Key Storage Enable option is enabled. For additional security, Dell Technologies recommends keeping the Key Storage Enable option enabled.  OBS: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Clear	When enabled, the Clear option clears information that is stored in the TPM after exiting the system's BIOS. This option returns to the disabled state when the computer restarts. By default, the Clear option is disabled. Dell Technologies recommends enabling the Clear option only when TPM data is required to be cleared.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Physical Presence Interface (PPI) Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration. By default, the PPI Bypass for Clear Commands option is disabled. For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Memory Encryption	

Tabell 40. System Setup options—Security menu (fortsättning)

Security	
Multi-Key Total Memory Eryption (Up to 16Keys)	Enables or disables the processor's memory encryption feature. By default, the Multi-Key Total Memory Eryption (Up to 16Keys) option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Chassis Intrusion	
Chassis Intrusion	Enables or disables the detection of chassis intrusion events. This feature notifies the user when the base cover has been removed from the computer. When set to Enabled, a notification is displayed on the next boot and the event is logged in the BIOS Events log. When set to Disabled, no notification is displayed and no event is logged in the BIOS Events log. When set to On-Silent, the event is logged in the BIOS Events log, but no notification is displayed. By default, the Chassis Intrusion Detection option is disabled. For additional security, Dell Technologies recommends keeping the Chassis Intrusion option enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Boot Until Cleared	The Block Boot Until Clear option is enabled when Chassis Intrusion is enabled. When enabled, the computer does not boot until the chassis intrusion is cleared.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
SMM Security Mitigation	
	Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to the operating system that security best practices have been implemented by the UEFI firmware. By default, the SMM Security Mitigation option is enabled. For additional security, Dell Technologies recommends keeping the SMM Security Mitigation option enabled unless you have a specific application which is not compatible.  OBS: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.  OBS: To view this option, enable Service options as described in View Service options.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device.  CAUTION: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed. Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the Start Data Wipe option is disabled.

Tabell 40. System Setup options—Security menu (fortsättning)

Security	
	 OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HDD Security	This options controls the mechanism used by BIOS to block external Self Encrypting Drives (SED) management software to take ownership of the SED. The options are: • SED Block SID Authentication • PPI Bypass for SED Block SID Command Both the options are disabled by default.  OBS: This option is applicable with laptops shipped with SED.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Absolute	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the Absolute option is enabled. For additional security, Dell Technologies recommends keeping the Absolute option enabled.  WARNING: The Permanently Disabled option can only be selected once. When Permanently Disabled is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.  OBS: The Enable/Disable options are unavailable while the computer is in the activated state.  OBS: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the Always Except Internal HDD option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Authenticated BIOS Interface	
Enable Authenticated BIOS Interface	Enables or disables the authenticated BIOS Interface.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Clear Certificate Store	Deletes the certificate.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Legacy Manageability Interface Access	Helps to access the Legacy Manageability Interface.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Firmware Device Tamper Detection	Allows you to control the firmware device tamper detection feature. This feature notifies the user when the firmware device is tampered. When enabled, a screen warning message is displayed on the computer and a tamper detection event is logged in the BIOS Events log. The computer fails to reboot until the event is cleared.

Tabell 40. System Setup options—Security menu (fortsättning)

Security	
	By default, the Firmware Device Tamper Detection option is enabled. For additional security, Dell Technologies recommends keeping the Firmware Device Tamper Detection option enabled.
Clear Firmware Device Tamper Detection	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the Clear Firmware Device Tamper Detection option is disabled.
Pluton Security Processor	Enables or disables the utilization of the Pluton Security Processor by the operating system to provide security services such as Key Storage Provider functionality. By default, the Pluton Security Processor option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 41. System Setup options—Passwords menu

Passwords	
Administrator Password	The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS Setup options can only be modified after providing the correct password. The following rules and dependencies apply to the Administrator Password - • The administrator password cannot be set if system and/or internal storage passwords are previously set. • The administrator password can be used in place of the system and/or internal storage passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the system password (if set). Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS Setup options.
System Password	The System Password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt. • The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the Esc key is pressed at the System Password prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Hard Drive Password	 OBS: On some computers, the M.2 PCIe SSD-0 Password option is shown. The hard drive password can be set to prevent unauthorized access of the data stored on the solid-state drive. The computer prompts for the hard drive password during boot in order to unlock the drive. A password-secured hard drive stays locked even when removed from the computer or placed into another computer. It prevents an attacker from accessing data on the drive without authorization. The following rules and dependencies apply when the Hard Drive Password or M.2 PCIe SSD-0 Password option is used. • The hard drive password option cannot be accessed when the hard drive is disabled in the BIOS Setup.

Tabell 41. System Setup options—Passwords menu (fortsättning)

Passwords	
	• The computer shuts down when idle for approximately 10 minutes at the hard drive password prompt. • The computer shuts down after three incorrect attempts to enter the hard drive password and treats the hard drive as not available. • The hard drive does not accept password unlock attempts after five incorrect attempts to enter the hard drive password from the BIOS Setup. The hard drive password must be reset for the new password unlock attempts. • The computer treats the hard drive as not available when the Esc key is pressed at the hard drive password prompt. • The hard drive password is not prompted when the computer resumes from standby mode. When the hard drive is unlocked by the user before the computer goes into standby mode, it remains unlocked after the computer resumes from standby mode. • If the system and hard drive passwords are set to the same value, the hard drive unlocks after the correct system password is entered. Dell Technologies recommends using a hard drive password to protect unauthorized data access.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the Lower Case Letter option is enabled, the password requires at least one lower case letter. When the Upper Case Letter option is enabled, the password requires at least one upper case letter. When the Digit option is enabled, the password requires at least one numeric digit. When the Special Character option is enabled, the password requires at least one special character from the set: !"#\$%&'()*+,-./:;<=>?@[\]^_`{ }~. When setting Minimum Characters for password length, Dell Technologies recommends setting the minimum password length to at least eight characters.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Bypass	The Password Bypass option allows the computer to reboot from the operating system without entering the system or hard drive password. If the computer has already booted to the operating system, it is presumed that the user has already entered the correct system or hard drive password.  OBS: This option does not remove the requirement to enter the password after shutting down. By default, the Password Bypass option is disabled. For additional security, Dell Technologies recommends keeping the Password Bypass option enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Changes	
Allow Non-Admin Password Changes	The Allow Non-Admin Password Changes option in BIOS Setup allows an end user to set or change the system or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password. By default, the Allow Non-Admin Password Changes option is enabled. For additional security, Dell Technologies recommends keeping the Allow Non-Admin Password Changes option disabled.

Tabell 41. System Setup options—Passwords menu (fortsättning)

Passwords	
	 OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Admin Setup Lockout	
Enable Admin Setup Lockout	The Admin Setup Lockout option prevents an end user from even viewing the BIOS Setup configuration without first entering the administrator password (if set). By default, the Enable Admin Setup Lockout option is disabled. For additional security, Dell Technologies recommends keeping the Admin Setup Lockout option disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Master Password Lockout	
Enable Master Password Lockout	The Master Password Lockout option allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the computer becomes unusable.  OBS: When the owner password is set, the Master Password Lockout option is not available.  OBS: When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the Enable Master Password Lockout option is disabled. Dell Technologies does not recommend enabling the Master Password Lockout unless you have implemented your own password recovery system.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	The Allow Non-Admin PSID Revert option allows a user to clear the hard drive password without entering the BIOS Admin Password. When an Admin Password is set, the ability to enter the PSID is protected by requiring authentication with the Admin Password. If this option is enabled, any user can clear the drive without entering the Admin Password. By default, the Enable Allow Non-Admin PSID Revert option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 42. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer.  OBS: Once set in the BIOS, the Asset Tag cannot be changed.
Wake on AC	Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer. By default, the Wake on AC option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 42. System Setup options—System Management menu (fortsättning)

System Management	
Wake on LAN	Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the Auto On Time option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel AMT capability	Configure Intel Active Management Technology (AMT) options, which can be enabled, disabled, or restricted.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Set Ownership Date Diagnostics OS agent requests	Displays the date of the computer when it was powered on the first time. Enable or disable the option for applications running in the operating system to run with preboot diagnostics on subsequent boots.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Power-On-Self-Test Automatic Recovery	Enable or disable the automatic recovery of the computer from no power or no-POST failure by applying mitigation steps. By default, the Power-On-Self-Test Automatic Recovery option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 43. System Setup options—Keyboard menu

Keyboard	
Fn Lock Options Fn Lock Options	Enables or disables the Fn Lock option. By default, the Fn Lock option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Lock Mode	By default, the Lock Mode Secondary option is enabled. With this option, the F1-F12 keys scan the code for their secondary functions.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature. By default, the Dim option is selected. Enables the keyboard illumination feature at 100% brightness level.
Keyboard Backlight Timeout on AC	Sets the timeout value for the keyboard backlight when an AC adapter is connected to the computer. By default, the 10 seconds option is selected.

Tabell 43. System Setup options—Keyboard menu (fortsättning)

Keyboard	
Keyboard Backlight Timeout on Battery	Sets the timeout value for the keyboard backlight when the computer is running only on the battery power. The keyboard backlight timeout value is only effective when the backlight is enabled. By default, the 10 seconds option is selected.
Device Configuration HotKey Access	Allows you to control whether you can access device configuration screens through hotkeys during system startup. By default, the Device Configuration HotKey Access option is enabled. i OBS: This setting controls only the Intel RAID (CTRL+I), MEBX (CTRL+P), and LSI RAID (CTRL+C) Option ROMs. Other preboot Option ROMs, which support entry using a key sequence, are not affected by this setting. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 44. System Setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	
Enable Adapter Warning	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the Enable Adapter Warning option is enabled.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected. i OBS: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
MAC Address Pass-Through	Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer. By default, the System Unique MAC Address option is selected.
Sign of Life	
Early Logo Display	Displays the Logo Sign of Life. By default, the Early Logo Display option is enabled. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Collaboration Touchpad	Enables or disables the Collaboration Touchpad. By default, the Collaboration Touchpad option is enabled. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Show Ownership Tag with Logo	Displays the ownership tag of the computer. i OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabell 45. System Setup options—Performance menu

Performance	
Multi-Core Support	
Active Multiple Performance Cores (P-Cores) Select	Allows to change the number of the CPU cores available to the OS. By default, the All Active option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
Active Multiple Efficient Cores (E-Cores) Select	Allows to change the number of the CPU E-cores available to the OS. By default, the All Active option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the Enable Intel SpeedStep Technology option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
C-State Control	
Enable C-State Control	Enables or disables the ability of the CPU to enter and exit low-power state. When disabled, it disables all C-states. When enabled, it enables all C-states that the chipset or platform allows. By default, the Enable C-State Control option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enables or disables the Intel TurboBoost mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor. By default, the Enable Intel Turbo Boost Technology option is enabled.  OBS: To view this option, enable Service options as described in View Service options.

Tabell 46. System Setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Select the option to keep or clear BIOS events logs. By default, the Keep Log option is selected.
Thermal Event Log	
Clear Thermal Event Log	Select the option to keep or clear thermal events logs. By default, the Keep Log option is selected.
Power Event Log	
Clear Power Event Log	Select the option to keep or clear power events logs. By default, the Keep Log option is selected.

Tabell 47. System Setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	
Enable UEFI Capsule Firmware Updates	Enables or disables BIOS updates through UEFI capsule update packages.  OBS: Disabling this option blocks the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS). By default, the Enable UEFI Capsule Firmware Updates option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
BIOS Recovery from Hard Drive	
	Enables or disables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB drive. By default, the BIOS Recovery from Hard Drive option is enabled.  OBS: BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED).  OBS: BIOS recovery is designed to fix the main BIOS block and cannot work if the Boot Block is damaged. In addition, this feature cannot work in the event of EC corruption, ME corruption, or a hardware issue. The recovery image must exist on an unencrypted partition on the drive.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
BIOS Downgrade	
Allow BIOS Downgrade	Allows downgrading of the system firmware to previous revisions. By default, the Allow BIOS Downgrade option is enabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
SupportAssist OS Recovery	
	Enables or disables the boot flow for SupportAssist OS Recovery tool if certain system errors occur. By default, the SupportAssist OS Recovery option is enabled.
BIOSConnect	
	Enables or disables cloud service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local service operating system does not boot or is not installed. By default, the BIOSConnect option is enabled.
Dell Auto OS Recovery Threshold	
	Allows the control of the automatic boot flow for the SupportAssist System Resolution Console and the Dell OS Recovery Tool. By default, the Dell Auto OS Recovery Threshold value is set to 2.

Tabell 48. System Setup options—Virtualization menu

Virtualization Support	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	When enabled, the computer can run a Virtual Machine Monitor (VMM). By default, the Enable Intel Virtualization Technology (VT) option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
VT for Direct I/O	

Tabell 48. System Setup options—Virtualization menu (fortsättning)

Virtualization Support	
Enable Intel VT for Direct I/O	When enabled, the computer can perform Virtualization Technology for Direct I/O (VT-d). VT-d is an Intel method that provides virtualization for memory map I/O. By default, the Enable Intel VT for Direct I/O option is enabled.  OBS: To view this option, enable Service options as described in View Service options.
Intel Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can use the additional hardware capabilities provided by Intel Trusted Execution Technology. The following must be enabled in order to enable Intel TXT - • Trusted Platform Module (TPM) • Intel Hyper-Threading • All CPU cores (Multi-Core Support) • Intel Virtualization Technology • Intel VT for Direct I/O By default, the Intel Trusted Execution Technology (TXT) option is disabled.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system.  OBS: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable Pre-Boot DMA Support option is enabled. For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled.  OBS: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable OS Kernel DMA Support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.  OBS: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable OS Kernel DMA Support option is enabled.  OBS: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Internal Port DMA Compatibility Mode	Allows you to control the boot compatibility for integrated PCIe peripherals by disabling PCIe DMA protection on internal PCIe ports. When enabled, BIOS will notify the operating system that the internal ports are not DMA capable. This option is to help with devices that have operating system DMA compatibility issues. This option does not directly enable DMA protection in the operating system.  OBS: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi).

Tabell 48. System Setup options—Virtualization menu (fortsättning)

Virtualization Support	
	By default, the Internal Port DMA Compatibility Mode option is disabled.  OBS: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.  OBS: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Uppdatera BIOS

Uppdatera BIOS i Windows

Steg

1. Gå till [Dells supportwebbplats](#).
2. Gå till **Identifiera din produkt eller sök support**. I rutan anger du produktidentifierare, modell, tjänstebegäran eller beskriver vad du letar efter och klickar sedan på **Sök**.

 **OBS:** Om du inte har din service tag använder du SupportAssist för automatisk identifiering av datorn. Du kan också använda produkt-ID:t eller söka efter din datormodell manuellt.
3. Klicka på **Drivrutiner och hämtningar**. Expandera **Hitta drivrutiner**.
4. Välj det operativsystem som är installerat på datorn.
5. I listrutan **Kategori** väljer du **BIOS**.
6. Välj den senaste versionen av BIOS och klicka på **Hämta** för att hämta BIOS-filen för datorn.
7. Bläddra till mappen där du sparade filen med BIOS-uppdateringen när hämtningen är klar.
8. Dubbelklicka på ikonen för BIOS-uppdateringsfilen och följ anvisningarna på skärmen.

Om du vill ha mer information om hur man uppdaterar systemets BIOS kan du söka i kunskapsdatabasresursen på [Dells supportwebbplats](#).

Uppdatera BIOS med USB-enheten i Windows

Steg

1. Gå till [Dells supportwebbplats](#).
2. Gå till **Identifiera din produkt eller sök support**. I rutan anger du produktidentifierare, modell, tjänstebegäran eller beskriver vad du letar efter och klickar sedan på **Sök**.

 **OBS:** Om du inte har din service tag använder du SupportAssist för automatisk identifiering av datorn. Du kan också använda produkt-ID:t eller söka efter din datormodell manuellt.
3. Klicka på **Drivrutiner och hämtningar**. Expandera **Hitta drivrutiner**.
4. Välj det operativsystem som är installerat på datorn.
5. I listrutan **Kategori** väljer du **BIOS**.
6. Välj den senaste versionen av BIOS och klicka på **Hämta** för att hämta BIOS-filen för datorn.
7. Skapa ett startbart USB-minne. Om du vill ha mer information kan du söka i kunskapsdatabasresursen på [Dells supportwebbplats](#).
8. Kopiera BIOS-inställningsprogramfilen till den startbara USB-enheten.
9. Anslut den startbara USB-enheten i datorn som behöver BIOS-uppdateringen.
10. Starta om datorn och tryck på **F12**.
11. Välj USB-enheten från menyn för **engångsstart**.
12. Skriv in filnamnet för BIOS-inställningsprogrammet och tryck på **Enter**.

BIOS-uppdateringsverktyget visas.

13. Följ anvisningarna på skärmen för att slutföra BIOS-uppdateringen.

Uppdatera BIOS i Linux- och Ubuntu

Information om hur du uppdaterar system-BIOS på en dator som har Linux eller Ubuntu finns i kunskapsbasartikel [000131486](#) på [Dells supportwebbplats](#).

Uppdatera BIOS från menyn för engångsstart

Du kan köra BIOS-flashuppdateringsfilen från Windows med hjälp av en startbar USB-enhet eller så kan du uppdatera BIOS från menyn för engångsstart på datorn. Om du vill uppdatera datorns BIOS kopierar du BIOS XXXX.exe-filen till en USB-enhet som formaterats med FAT32-filsystemet. Starta sedan om datorn och starta från USB-enheten med hjälp av menyn för engångsstart.

Om denna uppgift

BIOS Update (BIOS-uppdatering)

Om du vill kontrollera om flashuppdateringen av BIOS visas som ett startalternativ kan du starta datorn från menyn för **engångsstart**. Om alternativet visas kan BIOS uppdateras med den här metoden.

Om du vill uppdatera BIOS via menyn för engångsstart behöver du följande:

- USB-enhet som formaterats med FAT32-filsystemet (enheten måste inte vara startbar)
- En körbar BIOS-uppdateringsfil som hämtats från [Dells supportwebbplats](#) och kopierats till roten på USB-minnet.
- En växelströmsadapter måste vara ansluten till datorn.
- Ett fungerande datorbatteri för att uppdatera BIOS

Följ stegen nedan för att uppdatera BIOS från menyn för engångsstart:

 **CAUTION: Stäng inte av datorn under BIOS-flashuppdateringen. Datorn kanske inte startar om du stänger av datorn.**

Steg

1. Stäng av datorn och sätt i USB-enheten som innehåller BIOS-flashuppdateringsfilen.
2. Starta datorn och tryck på **F12** för att öppna menyn för **engångsstart**. Välj **BIOS-uppdatering** med hjälp av musen eller piltangenterna och tryck sedan på retur. Menyn uppdatera BIOS visas.
3. Klicka på **Flash-uppdatera från fil**.
4. Välj den externa USB-enheten.
5. När du har valt filen dubbelklickar du på flash-målfilen och trycker därefter på **Submit (Skicka)**.
6. Klicka på **Update BIOS (Uppdatera BIOS)**. Datorn startas om för att uppdatera BIOS.
7. Datorn startas om när BIOS-flashuppdateringen är klar.

System- och installationslösenord

 **CAUTION: Lösenordsfunktionerna ger dig en grundläggande säkerhetsnivå för informationen på datorn.**

 **CAUTION: Se till att datorn är låst när den inte används. Vem som helst kan komma åt data som är lagrade på datorn om de lämnas utan tillsyn.**

Tabell 49. System- och installationslösenord

Lösenordstyp	Beskrivning
Systemlösenord	Lösenord som du måste ange för att starta operativsystemet.
Installationslösenord	Lösenord som du måste ange för att öppna och ändra i datorns BIOS-inställningar.

Du kan skapa ett systemlösenord och ett installationslösenord för att skydda datorn.

 **OBS:** Funktionen för system- och installationslösenord är inaktiverad som standard.

Tilldela ett systeminstallationslösenord

Förutsättningar

Du kan endast tilldela ett nytt system- eller administratörlösenord när statusen är **Ej inställt**. Starta BIOS-konfigurationen genom att trycka på F2 omedelbart efter det att datorn startats eller startats om.

Steg

1. På skärmen **System BIOS (system-BIOS)** eller **System Setup (systeminstallation)** väljer du **Security (säkerhet)** och trycker på Retur.
Skärmen **Security (säkerhet)** visas.
2. Välj **System-/administratörlösenord** och skapa ett lösenord i fältet **Ange nytt lösenord**.
Använd följande rekommendationer för att skapa systemlösenordet:
 - Ett lösenord kan ha upp till 32 tecken
 - Ett lösenord kan ha minst ett specialtecken: "(! " # \$ % & ' * + , - . / : ; < = > ? @ [\] ^ _ ` { | })"
 - Ett lösenord kan ha nummer 0 till 9.
 - Ett lösenord kan innehålla stora bokstäver från A till Z.
 - Ett lösenord kan innehålla små bokstäver från a till z.
3. Skriv in lösenordet som du angav tidigare i fältet **Bekräfta nytt lösenord** och klicka på **OK**.
4. Tryck på Y för att spara ändringarna.
Datorn startar om.

Ta bort eller ändra ett befintligt system- eller installationslösenord

Förutsättningar

Kontrollera att **Lösenordsstatus** är upplåst i systeminstallation innan du försöker ta bort eller ändra det befintliga system- och/eller installationslösenordet. Du kan inte ta bort eller ändra ett befintligt system- eller installationslösenord om **Lösenordsstatus** är låst. Starta systeminstallationsprogrammet genom att trycka på F2 omedelbart efter det att datorn startats eller startats om.

Steg

1. På skärmen **System BIOS (system-BIOS)** eller **System Setup (systeminstallation)** väljer du **System Security (systemsäkerhet)** och trycker på Retur.
Skärmen **System Security (systemsäkerhet)** visas.
2. På skärmen **Systemsäkerhet** ska du kontrollera att **Lösenordstatus** är upplåst.
3. Välj **Systemlösenord**. Uppdatera eller ta bort det befintliga systemlösenordet och tryck på Retur- eller Tab-tangenten.
4. Välj **Installationslösenord**. Ändra eller ta bort det befintliga installationslösenordet och tryck på Retur- eller Tab-tangenten.
 **OBS:** Om du ändrar system- och/eller installationslösenordet anger du det nya lösenordet igen när du uppmanas till det. Om du tar bort ett system- och/eller installationslösenordet ska du bekräfta borttagningen när du uppmanas att göra det.
5. Tryck på Esc. Ett meddelande uppmanar dig att spara ändringarna.
6. Tryck på Y för att spara ändringarna och avsluta **Systeminstallation**.
Datorn startar om.

Rensa system- och installationslösenord

Om denna uppgift

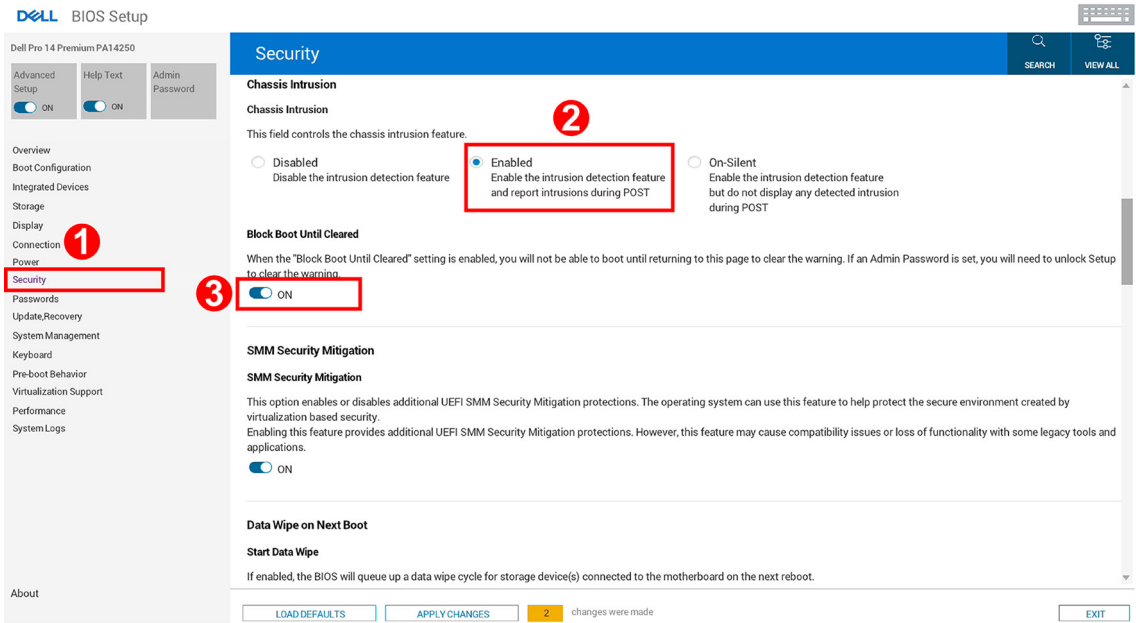
För att rensa system- eller installationslösenord kontaktar du Dells tekniska support enligt beskrivningen på [Kontakta support](#).

 **OBS:** Information om hur du återställer Windows eller programlösenord finns i dokumentationen till Windows eller programmet.

Clearing Chassis Intrusion Alerts

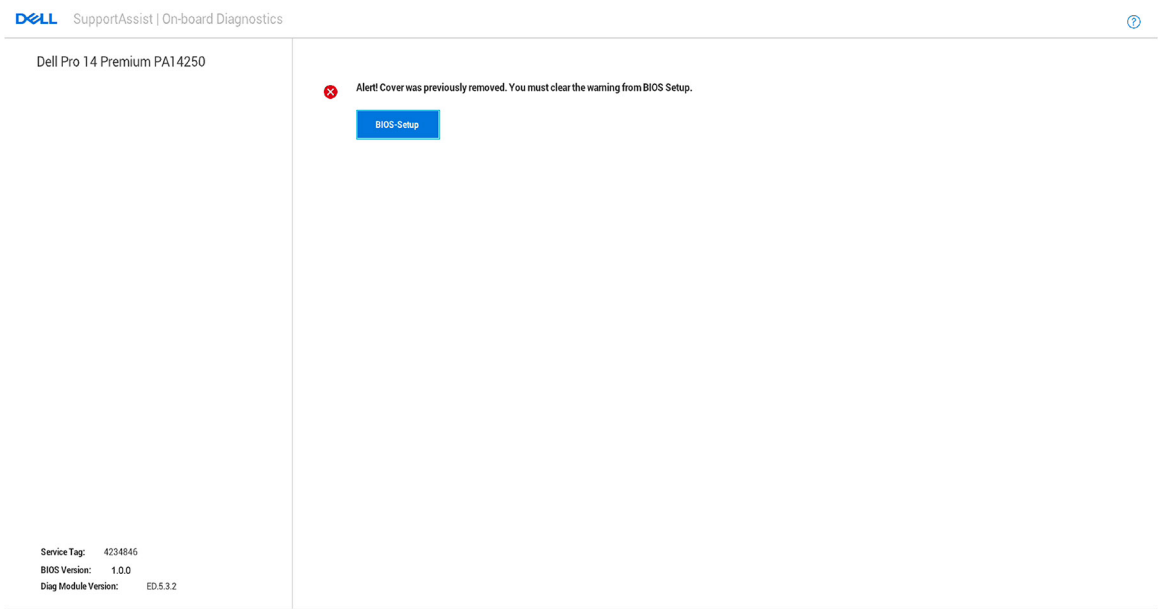
A chassis intrusion switch identifies whenever the system base cover has been removed. You can enable alerts about any intrusions through the **Chassis Intrusion** option in the Security submenu of the BIOS setup menu.

Once enabled, the **Block Boot Until Cleared** feature allows you to select whether to prevent the bootup until the intrusion alert is resolved.



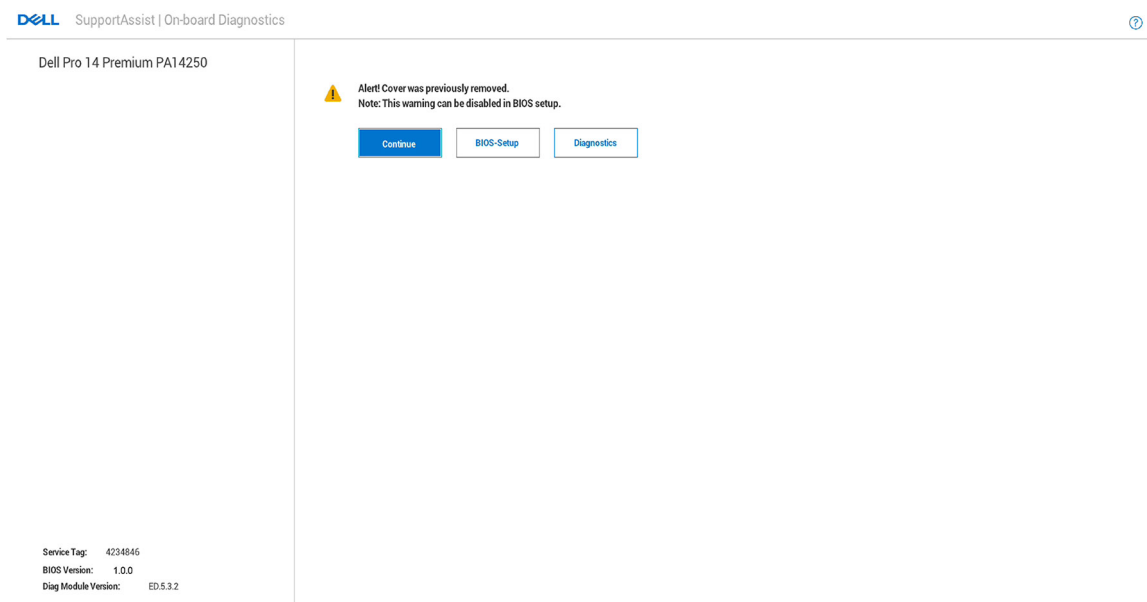
Figur 78. Block Boot Until Cleared

If **Block Boot Until Cleared** is set to **ON**, then you must select **BIOS-Setup** and clear the intrusion alert in order to boot up the computer normally.



Figur 79. BIOS-Setup

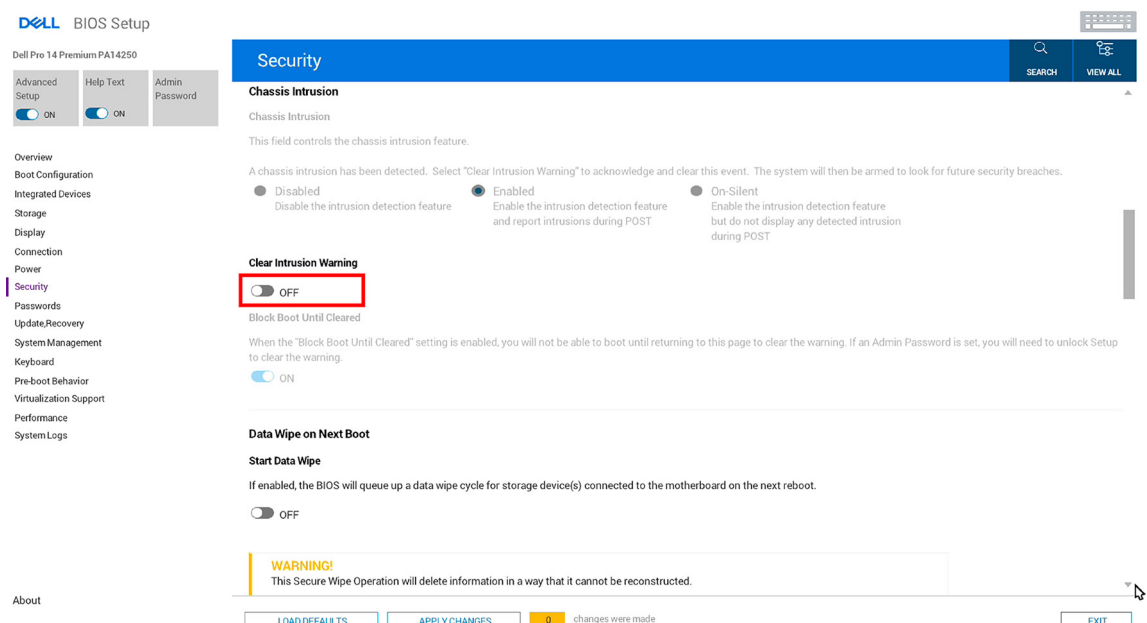
When **Block Boot Until Cleared** is switch to **OFF**, you can choose either **Continue** to proceed with the normal computer boot-up or **BIOS-Setup** to clear the alert.



Figur 80. BIOS-Setup

OBS: If the **Continue** option is selected, then you continue to see the alert each time the computer is turned on until the alert is cleared.

To clear the alert, select **ON** in the **Clear Intrusion Warning** field that is located within the **Security** sub-menu of the **BIOS setup** menu.



Figur 81. Clear Intrusion Warning

Felsökning

Hantera svullna uppladdningsbara litiumjonbatterier

Dells bärbara datorer använder litiumjonbatterier precis som de flesta andra bärbara datorer. En typ av litiumjonbatteri är det laddningsbara litiumjonbatteriet. Laddningsbara litiumjonbatterier har ökat i popularitet de senaste åren och blivit standard inom elektronikindustrin eftersom kunderna föredrar en tunn formfaktor (särskilt med nyare ultratunna bärbara datorer) och lång batterilivslängd. Tekniken i laddningsbara litiumjonbatterier innebär dock en risk för att battericellerna kan svälla.

Ett svullet batteri kan påverka den bärbara datorns prestanda. För att förhindra eventuella ytterligare skador på enhetens hölje eller interna komponenter som leder till funktionsstörningar, avsluta användningen av den bärbara datorn och ladda ur den genom att koppla bort nätadaptern och låta batteriet dräneras.

Svullna batterierna ska inte användas och ska bytas ut och avyttras på rätt sätt. Vi rekommenderar att du kontaktar Dells support för information om alternativ för att ersätta ett svullet batteri enligt villkoren i gällande garanti eller servicekontrakt, inklusive alternativ för byte genomfört av en Dell-auktoriserad servicetekniker.

Riktlinjerna för att hantera och byta ut laddningsbara litiumjonbatterier är som följer:

- Var försiktig när du hanterar laddningsbara litiumjonbatterier.
- Ladda ur batteriet innan det tas bort från den bärbara datorn. För att ladda ur batteriet, koppla bort nätadaptern från datorn och kör datorn endast på batteriström. Batteriet är helt urladdat när datorn inte längre slås på när strömbrytaren trycks in.
- Undvik att krossa, tappa, skada eller tränga in i batteriet med främmande föremål.
- Utsätt inte batteriet för höga temperaturer eller montera isär batteripaketen och -cellerna.
- Tryck inte på batteriets yta.
- Böj inte batteriet.
- Använd inte verktyg av någon typ för att bända på eller mot batteriet.
- Om ett batteri fastnar i en enhet som en följd av svullnad, försök inte att frigöra det eftersom punktering, böjning eller krossning av ett batteri kan vara farligt.
- Försök inte att sätta i ett skadat batteri eller ett batteri som svällt i en bärbar dator.
- Svullna batterier som täcks av garantin ska returneras till Dell i en godkänd fraktbehållare (som tillhandahålls av Dell) – detta är för att följa transportbestämmelserna. Svullna batterier som inte täcks av garantin ska kasseras på en godkänd återvinningscentral. Kontakta Dells support på [Dells supportwebbplats](#) för hjälp och ytterligare anvisningar.
- Användning av ett icke-Dell eller inkompatibelt batteri kan öka risken för brand eller explosion. Byt endast ut batteriet med ett kompatibelt batteri som köpts från Dell som är utformat för att fungera med din Dell-dator. Använd inte batterier från andra datorer med datorn. Köp alltid äkta batterier från [Dells webbplats](#) eller på annat sätt direkt från Dell.

Laddningsbara litiumjonbatterier kan svälla av olika orsaker som ålder, antal laddningscykler eller exponering av hög värme. För mer information om hur du förbättrar batteriets prestanda och livslängd och för att minimera risken för att problemet uppstår söker du efter "Batteri till bärbara Dell-datorer" i kunskapsdatabasen på [Dells supportwebbplats](#).

Dell SupportAssist-diagnostik för kontroll av systemprestanda före start

Om denna uppgift

SupportAssist-diagnostiken (även kallad systemdiagnostik) utför en fullständig kontroll av din hårdvara. Dell SupportAssist-diagnostik för kontroll av systemprestanda före start är inbäddad i BIOS och startas av BIOS internt. Den inbäddade systemdiagnosen ger alternativ för specifika enheter eller enhetsgrupper som gör att du kan:

- köra test automatiskt eller i interaktivt läge
- upprepa testerna
- visa och spara testresultat
- Kör noggranna tester för att lägga till fler alternativ och få information om eventuella felaktiga enheter.
- Visa statusmeddelanden som informerar dig när testerna har slutförts utan fel.
- visa felmeddelanden som informerar dig om problem som har upptäckts under testningen.

 **OBS:** Vissa tester för specifika enheter kräver användarinteraktion. Se till att alltid vara vid datorn när diagnostiktestet körs.

För mer information, se kunskapsbasartikeln [000181163](#).

Köra SupportAssist-kontrollen för systemprestanda före start

Steg

1. Starta datorn.
2. När datorn startar trycker du på tangenten F12.
3. Välj **Diagnostik** på startmenyskärmen.
Snabbtestet för diagnostik startar.
 **OBS:** Mer information om hur du kör SupportAssist-diagnostik för test av systemprestanda på en specifik enhet finns på [Dells supportwebbplats](#).
4. Om det finns problem visas felkoderna.
Anteckna felkoden och valideringsnumret och kontakta Dell.

Inbyggt självtest (BIST)

(Inbyggt självtest för moderkort) M-BIST

M-BIST är moderkortets inbyggda verktyg för diagnostik med självtestning som förbättrar diagnosen hos moderkortets inbäddade styrenhetsfel (EC).

 **OBS:** M-BIST kan initieras manuellt före Power On Self Test (POST).

Hur man kör M-BIST

 **OBS:** Kontrollera att datorn är i avstängt läge innan du startar M-BIST.

1. Tryck och håll både **M**-tangenten och strömbrytaren intryckta för att initiera M-BIST.
2. Batteriindikator-LED-lampan kan uppvisa två tillstånd:
 - Av: Inget fel upptäcktes.
 - Orange och vitt: Indikerar ett problem med moderkortet.
3. Om det uppstår ett fel i moderkortet visar batteristatus-LED-lampan en av följande blinkande felkoder i 30 sekunder:

Tabell 50. Lysdiodfelkoder

Blinkningsmönster		Möjligt problem
Orange	Vit	
2	1	CPU-fel
2	8	LCD-strömskenefel
1	1	Fel vid TPM-avkänning
2	4	Fel på minne/RAM

4. Om det inte finns något fel på moderkortet går LCD:n igenom skärmarna med fasta färger (som beskrivs i LCD-BIST) i 30 sekunder och stängs sedan av.

Inbyggt logiskt självtest (L-BIST)

L-BIST är en förbättring av den enskilda LED-felkoden och startas automatiskt under POST. L-BIST för att kontrollera LCD-strömskena. Om LCD inte förses med ström (det vill säga om L-BIST-kretsen misslyckas) blinkar en felkod på batteriets statuslampa, antingen [2,8] eller [2,7].

 **OBS:** Om L-BIST misslyckas fungerar inte LCD-BIST eftersom ingen ström tillförs till LCD:n.

Hur man startar L-BIST

1. Starta datorn.
2. Om datorn inte startar normalt tittar du på batteristatus-LED:en:
 - Om batteristatus-LED:en visar en blinkande felkod [2,7] kanske bildskärmskabeln inte är korrekt ansluten.
 - Om batteristatuslampan blinkar med en felkod [2,8] finns det ett fel på moderkortets LCD-strömskena, och därför finns det ingen ström till LCD.
3. För fall när en felkod [2,7] visas kontrollerar du att bildskärmskabeln är korrekt ansluten.
4. För fall när en felkod [2,8] visas byter du ut moderkortet.

Inbyggt självtest för LCD (LCD-BIST)

Dells bärbara datorer har ett inbyggt diagnostikverktyg som hjälper dig att avgöra om skärmbilden du upplever är ett internt problem med LCD-skärmen på den bärbara Dell-datorn eller med grafikkortet (GPU) och datorns inställningar.

När du märker av onormal skärmfunktion som flimmer, förvrängning, suddig bild, horisontella eller vertikala linjer eller färgblekning, är det alltid bra att isolera LCD-skärmen genom att köra LCD-BIST.

Hur man startar LCD-BIST

1. Stäng av datorn.
2. Koppla bort eventuell kringutrustning som är ansluten till datorn. Anslut endast nätadaptern (laddaren) till datorn.
3. Se till att LCD-skärmen är ren (inga dammpartiklar får finnas på skärmens yta).
4. Håll tangenten **D** intryckt och tryck på strömknappen för att starta LCD-BIST-läget. Fortsätt att hålla tangenten **D** intryckt tills datorn startar.
5. Skärmen visar fasta färger och byter färger på hela skärmen till vitt, svart, rött, grönt och blått två gånger.
6. Då visas färgerna vitt, svart och rött.
7. Kontrollera skärmen noggrant avseende avvikelser (linjer, suddiga färger eller störningar på skärmen).
8. Vid slutet av den sista fasta färgen (röd) stängs datorn av.

 **OBS:** Dell SupportAssists Preboot-diagnostik före start initierar först LCD-BIST och användaren förväntas bekräfta LCD-funktionen.

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell Pro 14 Premium PA14250.

The following table shows different Service LED blinking patterns and associated problems. The diagnostic light codes consist of a two-digit number, and the digits are separated by a comma. The number stands for a blinking pattern; the first digit shows the number of blinks in amber color, and the second digit shows the number of blinks in white color. The Service LED blinks in the following manner:

- The Service LED blinks the number of times equal to value of the first digit and turns off with a short pause.
- After that, the Service LED blinks the number of times equal to the value of the second digit.
- The Service LED turns off again with a longer pause.
- After the second pause, the blinking pattern will be repeated.

Tabell 51. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description	Recommended solutions
1,1	TPM Detection Failure	Replace the system board.
1,2	Unrecoverable SPI Flash Failure	Replace the system board.
1,5	EC unable to program i-Fuse	Replace the system board.
1,6	Generic catch-all for ungraceful EC code flow errors	Disconnect all power source (AC, coin cell) and drain flea power by pressing and holding down the power button.

Tabell 51. Diagnostic light codes (fortsättning)

Diagnostic light codes (Amber, White)	Problem description	Recommended solutions
1,7	Non-RPMC Flash on Boot Guard fused system	Flash latest BIOS version. If the problem persists, replace the system board.
1,8	Chipset "Catastrophic Error" signal has tripped	Replace the CPU.
2,1	CPU configuration or CPU failure	Replace the CPU.
2,2	System board: BIOS or Read-Only Memory (ROM) failure	Flash latest BIOS version. If the problem persists, replace the system board.
2,3	No memory or Random-Access Memory (RAM) detected	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,4	Memory or Random-Access Memory (RAM) failure	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,5	Invalid memory installed	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,6	System board/Chipset Error	Replace the system board.
2,7	LCD failure SBIOS message	Replace the display.
2,8	Display power-rail failure on the system board	Replace the system board.
3,1	CMOS battery failure	Reset the CMOS battery connection. If the problem persists, replace the RTC battery.
3,2	PCI of Video card/chip failure	Replace the system board.
3,3	Recovery image not found	Replace the system board.
3,4	Recovery image found but invalid	Replace the system board.
3,5	EC power-rail error	Replace the system board.
3,6	Flash corruption detected by SBIOS	Flash corruption is detected by SBIOS. If the problem persists, replace the system board.
3,7	Timeout waiting on ME to reply to HECI message	Replace the system board.
4,1	Memory DIMM power rail failure	Replace the system board.
4,2	CPU Power cable connection issue	• Perform the M-BIST Test, reseat the cable. • If this does not work, replace the system board, power supply or cabling.
4,4	LCD Power Rail Failure	Replace system board

Återställ operativsystemet

När datorn inte kan starta upp till operativsystemet även efter upprepade försök startar den automatiskt Dell SupportAssist OS Recovery.

Dell SupportAssist OS Recovery är ett fristående verktyg som är förinstallerat på Dell-datorer som kör Windows-operativsystemet. Den består av verktyg för att diagnostisera och felsöka problem som kan uppstå innan datorn startar till operativsystemet. Det gör det möjligt att diagnostisera hårdvaruproblem, reparera datorn, säkerhetskopiera filer och återställa datorn till fabriksinställningarna.

Du kan också ladda ner den från Dells supportwebbplats för att felsöka och åtgärda datorn när den inte startar till det primära operativsystemet på grund av mjukvaru- eller hårdvarufel.

För mer information om Dell SupportAssist OS Recovery, se *bruksanvisningen för Dell SupportAssist OS Recovery* på [Hållbarhetsverktyg på Dells supportwebbplats](#). Klicka på **SupportAssist** och klicka sedan på **SupportAssist OS Recovery**.

Real-Time Clock (RTC Reset)

The Real-Time Clock (RTC) reset function enables you or the service technician to recover Dell computers from No POST/No Power/No Boot situations.

Start the RTC reset with the computer powered off and connected to AC power. Press and hold the power button for twenty-five seconds and the power LED flashes twice. The computer RTC Reset occurs after you release the power button.

Säkerhetskopieringsmedia och återställningsalternativ

Vi rekommenderar att du skapar en återställningsenhet för att felsöka och lösa problem som kan uppstå i Windows. Dell tillhandahåller flera alternativ för att återställa Windows-operativsystemet på din Dell-dator. Mer information hittar du i [Dell Windows säkerhetskopieringsmedia och återställningsalternativ](#).

Nätverksströmcykel

Om denna uppgift

Om datorn inte kan ansluta till internet på grund av nätverksanslutningsproblem återställer du nätverksenheterna med hjälp av följande steg:

Steg

1. Stäng av datorn.
2. Stäng av modemmet.
 **OBS:** Vissa internetleverantörer tillhandahåller en modem- och routerkombinationsenhet.
3. Stäng av den trådlösa routern.
4. Vänta i 30 sekunder.
5. Slå på den trådlösa routern.
6. Slå på modemmet.
7. Starta datorn.

Drain flea power (perform hard reset)

Om denna uppgift

Flea power is the residual static electricity that remains in the computer even after it has been powered off and the battery is removed.

For your safety, and to protect the sensitive electronic components in your computer, you must drain residual flea power before removing or replacing any components in your computer.

Draining flea power, also known as a performing a "hard reset," is also a common troubleshooting step if your computer does not turn on or boot into the operating system.

Perform the following steps to drain the flea power:

Steg

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.

9. Turn on the computer.

i **OBS:** For more information about performing a hard reset, go to [Dell Support Site](#). On the menu bar at the top of the Support page, select Support > Support Library. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Få hjälp och kontakta Dell

Resurser för självhjälp

Du kan få information och hjälp för Dell-produkter och tjänster med följande resurser för självhjälp:

Tabell 52. Resurser för självhjälp

Resurser för självhjälp	Resursplats
Information om Dell-produkter och tjänster	Dells webbplats
Tips	
Kontakta support	I Windows skriver du Contact Support och trycker på retur.
Onlinehjälp för operativsystemet	Windows supportwebbplats Linux supportwebbplats
Få tillgång till de bästa lösningarna, diagnostik, drivrutiner och hämtningsbara filer samt lär dig mer om datorn genom videoklipp, handböcker och dokument.	Din Dell-dator identifieras unikt med en service tag eller en expresstjänstkod. Om du vill se relevanta supportresurser för din Dell-dator anger du service tag eller expresstjänstkoden på Dells supportwebbplats . Mer information om hur du hittar din dators service tag finns i Hitta service tag på din dator .
Dells kunskapsdatabasartiklar	1. Gå till Dells supportwebbplats. 2. Välj Support > Supportbibliotek i menypanelen längst upp på sidan Support. 3. I sökfältet på sidan Supportbibliotek skriver du in nyckelord, ämne eller modellnummer och klickar eller trycker sedan på sökikonen för att visa relaterade artiklar.

Kontakta Dell

Om du vill kontakta Dell med frågor om försäljning, teknisk support eller kundtjänst, se [Dells supportwebbplats](#).

 **OBS:** Tjänsternas tillgänglighet kan variera beroende på land eller region och produkt.

 **OBS:** Om du inte har en aktiv internetanslutning kan du hitta kontaktinformationen på ditt inköpskvitto, packsedeln, fakturan eller i Dells produktkatalog.